1
00:00:08,070 --> 00:00:05,190
good afternoon everybody and welcome to

2
00:00:09,750 --> 00:00:08,080
the spacex 2 pre-launch news conference

3
00:00:11,749 --> 00:00:09,760
we're here live at kennedy space center

4
00:00:13,589 --> 00:00:11,759
in florida everything is on track for

5
00:00:15,589 --> 00:00:13,599
the launch of the falcon 9 rocket with

6
00:00:18,230 --> 00:00:15,599
its dragon capsule tomorrow morning at

7
00:00:20,630 --> 00:00:18,240
10 10 a.m eastern standard time and

8
00:00:22,470 --> 00:00:20,640
we're here today to talk about the

9
00:00:24,310 --> 00:00:22,480
preparations for the mission and the

10
00:00:27,670 --> 00:00:24,320
mission itself we're happy to be joined

11
00:00:29,429 --> 00:00:27,680
today by mr mike safradini the nasa

12
00:00:32,150 --> 00:00:29,439
international space station program

13
00:00:37,350 --> 00:00:34,310

and by gwen shotwell the president of

14
00:00:42,630 --> 00:00:40,229
and joel tambiolo launch weather officer

15
00:00:44,389 --> 00:00:42,640
from the 45th weather squadron at cape

16
00:00:46,389 --> 00:00:44,399
canaveral air force station here in

17
00:00:48,630 --> 00:00:46,399
florida and we'll start off with opening

18
00:00:50,069 --> 00:00:48,640
comments mr saffordini well good

19
00:00:51,670 --> 00:00:50,079
afternoon it's always good to be in

20
00:00:53,189 --> 00:00:51,680
florida because it means we're uh we're

21
00:00:55,270 --> 00:00:53,199
about to launch another vehicle to the

22
00:00:56,869 --> 00:00:55,280
international space station so uh we're

23
00:00:58,950 --> 00:00:56,879
we're happy to be here quite a bit of

24
00:01:00,069 --> 00:00:58,960
work has been done to to get to this

25
00:01:04,390 --> 00:01:00,079
point

26
00:01:07,590 --> 00:01:04,400
both by the spacex team and by the iss

27
00:01:09,350 --> 00:01:07,600
team on the ground and the crew on orbit

28
00:01:11,429 --> 00:01:09,360
we've spent quite a bit of time over the

29
00:01:13,910 --> 00:01:11,439
last few weeks reconfiguring the station

30
00:01:15,910 --> 00:01:13,920
to be ready for uh for the birthing of

31
00:01:18,870 --> 00:01:15,920
the dragon spacecraft

32
00:01:20,390 --> 00:01:18,880
we did a major software upgrade on board

33
00:01:23,350 --> 00:01:20,400
which probably followed along because

34
00:01:24,230 --> 00:01:23,360
you heard about a com loss which was a

35
00:01:27,190 --> 00:01:24,240
which

36
00:01:30,870 --> 00:01:27,200
was the result of a momentary hiccup in

37
00:01:33,429 --> 00:01:30,880
our process of upgrading our software

38
00:01:35,510 --> 00:01:33,439

but was really never a big concern it's

39
00:01:37,749 --> 00:01:35,520
just whenever you you can't communicate

40
00:01:39,109 --> 00:01:37,759
with the crew of course we become

41
00:01:41,350 --> 00:01:39,119
a little concerned and want to get back

42
00:01:43,109 --> 00:01:41,360
to that configuration as soon as we can

43
00:01:45,350 --> 00:01:43,119
but we've overcome that over a million

44
00:01:46,950 --> 00:01:45,360
lines of code were upgraded and

45
00:01:50,069 --> 00:01:46,960
including the software for the arm

46
00:01:52,950 --> 00:01:50,079
that's going to capture the dragon

47
00:01:55,109 --> 00:01:52,960
so the that's been done the rws system

48
00:01:57,350 --> 00:01:55,119
itself is up and configured it's been

49
00:02:00,389 --> 00:01:57,360
checked out the arm is in position in

50
00:02:02,389 --> 00:02:00,399
its grapple position for when dragon

51
00:02:04,149 --> 00:02:02,399
approaches so that's ready to go

52
00:02:05,910 --> 00:02:04,159
and the and the systems to communicate

53
00:02:06,870 --> 00:02:05,920
with the dragon have been checked out

54
00:02:10,469 --> 00:02:06,880
and

55
00:02:13,350 --> 00:02:10,479
for birthing so on board we're ready to

56
00:02:15,510 --> 00:02:13,360
go uh for the launch of of the dragon

57
00:02:17,670 --> 00:02:15,520
and are looking forward to it uh this

58
00:02:19,430 --> 00:02:17,680
crew as you know that's uh gonna do the

59
00:02:21,990 --> 00:02:19,440
work of capturing some of this crew will

60
00:02:24,470 --> 00:02:22,000
depart uh halfway through the birth

61
00:02:26,070 --> 00:02:24,480
stage of the dragon and so that'll be

62
00:02:27,589 --> 00:02:26,080
unique for us the first time we've done

63
00:02:29,430 --> 00:02:27,599

that

64
00:02:30,869 --> 00:02:29,440
it's not particularly challenging event

65
00:02:32,710 --> 00:02:30,879
other than the analysis you have to do

66
00:02:34,550 --> 00:02:32,720
when you have another spacecraft

67
00:02:36,390 --> 00:02:34,560
attached to the station and

68
00:02:38,229 --> 00:02:36,400
and you have a soyuz depart but that's

69
00:02:41,589 --> 00:02:38,239
perfectly within our

70
00:02:43,750 --> 00:02:41,599
experience base but it'll be uh

71
00:02:45,830 --> 00:02:43,760
unique that we bring dragon up with six

72
00:02:48,150 --> 00:02:45,840
crew and depart with three

73
00:02:49,830 --> 00:02:48,160
in addition on this flight uh which we

74
00:02:51,509 --> 00:02:49,840
have talked about in the previous

75
00:02:53,589 --> 00:02:51,519
science briefing

76
00:02:55,509 --> 00:02:53,599
we have research that's going to come up

77
00:02:57,350 --> 00:02:55,519
on dragon we're going to going to do the

78
00:02:59,030 --> 00:02:57,360
research on board the station it's going

79
00:03:00,869 --> 00:02:59,040
to take us about 22 days to do this

80
00:03:02,550 --> 00:03:00,879
materials research and then we're going

81
00:03:04,630 --> 00:03:02,560
to put it back in the dragon and return

82
00:03:05,509 --> 00:03:04,640
it home so this becomes a driver for how

83
00:03:07,670 --> 00:03:05,519
long

84
00:03:10,309 --> 00:03:07,680
we remained attached with the dragon

85
00:03:12,630 --> 00:03:10,319
spacecraft for this particular mission

86
00:03:15,110 --> 00:03:12,640
so what that shows you is this unique

87
00:03:17,509 --> 00:03:15,120
vehicle is has become a very integral

88
00:03:19,270 --> 00:03:17,519

part of how we operate and utilize the

89
00:03:21,190 --> 00:03:19,280
international space station

90
00:03:22,149 --> 00:03:21,200
and and so we're looking forward to this

91
00:03:24,229 --> 00:03:22,159
one

92
00:03:25,509 --> 00:03:24,239
coming up here soon so with that i'll

93
00:03:27,830 --> 00:03:25,519
hand it over to gwen and she can tell

94
00:03:29,190 --> 00:03:27,840
you all about dragon's readiness

95
00:03:31,030 --> 00:03:29,200
thanks mike

96
00:03:32,710 --> 00:03:31,040
so i can't

97
00:03:34,309 --> 00:03:32,720
tell you how excited i am to be back

98
00:03:35,430 --> 00:03:34,319
here in florida because as mike said

99
00:03:37,750 --> 00:03:35,440
that means we're launching we're a

100
00:03:39,830 --> 00:03:37,760
launch company we love to launch

101
00:03:42,789 --> 00:03:39,840
very excited to be

102
00:03:44,470 --> 00:03:42,799
ready and prepared to fly the second

103
00:03:46,470 --> 00:03:44,480
operational mission to the international

104
00:03:48,550 --> 00:03:46,480
space station it is the third with the

105
00:03:49,910 --> 00:03:48,560
first being a demo flight

106
00:03:52,070 --> 00:03:49,920
i want to give you a little bit more

107
00:03:54,309 --> 00:03:52,080
detail than currently in your press

108
00:03:56,550 --> 00:03:54,319
kit on the timeline

109
00:03:57,670 --> 00:03:56,560
we have begun late load operations they

110
00:04:00,309 --> 00:03:57,680
started at

111
00:04:03,270 --> 00:04:00,319
24 hours prior to liftoff and we

112
00:04:05,589 --> 00:04:03,280
continue to do so until the last late

113
00:04:07,750 --> 00:04:05,599

load of cargo into dragon

114
00:04:08,869 --> 00:04:07,760
is at l minus eight hours launch minus

115
00:04:10,470 --> 00:04:08,879
eight hours

116
00:04:12,229 --> 00:04:10,480
we plan to lift off tomorrow morning at

117
00:04:14,710 --> 00:04:12,239
10 10 local

118
00:04:15,910 --> 00:04:14,720
and have a three-minute first stage

119
00:04:17,670 --> 00:04:15,920
flight

120
00:04:19,349 --> 00:04:17,680
three minutes and 52 seconds into the

121
00:04:24,150 --> 00:04:19,359
flight you should hopefully see on the

122
00:04:26,710 --> 00:04:24,160
web nose cone jettison occur um and uh

123
00:04:28,629 --> 00:04:26,720
then the second stage uh

124
00:04:30,230 --> 00:04:28,639
that we should have states excuse me

125
00:04:31,830 --> 00:04:30,240
three minutes after liftoff we'll have

126
00:04:34,710 --> 00:04:31,840
first stage uh

127
00:04:36,710 --> 00:04:34,720
flight uh ignite the second stage three

128
00:04:38,950 --> 00:04:36,720
minutes and 52 seconds into uh the

129
00:04:41,030 --> 00:04:38,960
flight dragon nose cone will jettison

130
00:04:43,590 --> 00:04:41,040
nine minutes and 11 seconds after

131
00:04:45,030 --> 00:04:43,600
liftoff we will have second stage engine

132
00:04:48,150 --> 00:04:45,040
cut off

133
00:04:50,870 --> 00:04:48,160
9 minutes and 46 seconds after liftoff

134
00:04:53,590 --> 00:04:50,880
we should see dragon separate

135
00:04:55,510 --> 00:04:53,600
about 11 minutes and 45 seconds into the

136
00:04:58,310 --> 00:04:55,520
into the flight dragon solar array

137
00:05:01,430 --> 00:04:58,320
should deploy which is really the uh

138
00:05:03,749 --> 00:05:01,440

the kickoff of the uh on orbit mission

139
00:05:05,110 --> 00:05:03,759
about two and a half hours into that uh

140
00:05:07,029 --> 00:05:05,120
into the flight

141
00:05:09,189 --> 00:05:07,039
we'll start doing the first burn of

142
00:05:11,990 --> 00:05:09,199
dragon as well as opening the gnc bay

143
00:05:14,469 --> 00:05:12,000
door which allows the grapple fixture

144
00:05:15,990 --> 00:05:14,479
to be exposed and demonstrates a

145
00:05:18,390 --> 00:05:16,000
critical readiness

146
00:05:20,310 --> 00:05:18,400
piece for us to approach and then birth

147
00:05:21,990 --> 00:05:20,320
with the international space station

148
00:05:23,909 --> 00:05:22,000
we'll continue to do a series of burns

149
00:05:26,230 --> 00:05:23,919
for the next 18 hours

150
00:05:28,710 --> 00:05:26,240
and this mission is a little bit unique

151
00:05:30,629 --> 00:05:28,720
in that the phasing between dragon

152
00:05:33,189 --> 00:05:30,639
and the iss is such that we get there in

153
00:05:35,590 --> 00:05:33,199
less than 24 hours so this is a very

154
00:05:39,110 --> 00:05:35,600
quick launch to birth mission for us and

155
00:05:40,870 --> 00:05:39,120
we're quite excited about that um

156
00:05:43,430 --> 00:05:40,880
two days after liftoff the astronauts

157
00:05:45,590 --> 00:05:43,440
should open the dragon hatch and begin

158
00:05:48,230 --> 00:05:45,600
unloading the cargo executing the

159
00:05:52,150 --> 00:05:48,240
science uh reloading the dragon capsule

160
00:05:55,430 --> 00:05:52,160
for a return home on the 25th of march

161
00:05:58,150 --> 00:05:55,440
orbital insertion targeted 200 by 325

162
00:06:00,550 --> 00:05:58,160
kilometers uh in case we have an engine

163
00:06:02,870 --> 00:06:00,560

anomaly this time we can drop off dragon

164
00:06:06,230 --> 00:06:02,880
in as low as 200 by 200

165
00:06:08,070 --> 00:06:06,240
so that should be nominal as well

166
00:06:10,469 --> 00:06:08,080
and we're carrying up by the way you

167
00:06:13,350 --> 00:06:10,479
might see difference in numbers between

168
00:06:16,230 --> 00:06:13,360
nasa and other sources on the cargo we

169
00:06:18,070 --> 00:06:16,240
carry cargo for nasa plus all their

170
00:06:19,350 --> 00:06:18,080
support equipment and their packing so

171
00:06:21,029 --> 00:06:19,360
that's why there'd be difference in the

172
00:06:23,270 --> 00:06:21,039
numbers that you see

173
00:06:28,150 --> 00:06:23,280
but we are carrying up about 27

174
00:06:30,029 --> 00:06:28,160
2 700 pounds of stuff for nasa uh that

175
00:06:33,749 --> 00:06:30,039
pressurized cargo plus its packing is

176
00:06:35,430 --> 00:06:33,759
677 kilos or 1493 pounds the

177
00:06:37,430 --> 00:06:35,440
unpressurized cargo we're carrying up

178
00:06:39,990 --> 00:06:37,440
grapple bars for the first time they go

179
00:06:42,950 --> 00:06:40,000
up in the trunk which is that looks like

180
00:06:44,469 --> 00:06:42,960
an inner stage that sits below dragon

181
00:06:46,950 --> 00:06:44,479
this the grapple bars is it's an

182
00:06:50,870 --> 00:06:46,960
interesting uh not only is it a first

183
00:06:53,029 --> 00:06:50,880
flight of external unpressurized cargo

184
00:06:54,309 --> 00:06:53,039
spacex actually contributed to the cargo

185
00:06:56,390 --> 00:06:54,319
pack itself

186
00:06:58,950 --> 00:06:56,400
the grapple bars are provided to us by

187
00:07:01,430 --> 00:06:58,960
nasa built by one of their contractors

188
00:07:03,909 --> 00:07:01,440

we built the support equipment to attach

189
00:07:05,510 --> 00:07:03,919
it into the spacex trunk in addition

190
00:07:08,550 --> 00:07:05,520
there's two grapple bars you hear bars

191
00:07:11,430 --> 00:07:08,560
so there's two of them and spacex

192
00:07:13,430 --> 00:07:11,440
developed and tested the fixture the

193
00:07:15,270 --> 00:07:13,440
structure that keeps those two together

194
00:07:17,430 --> 00:07:15,280
so we'll have hardware on station in

195
00:07:21,029 --> 00:07:17,440
addition to dragon after we

196
00:07:23,270 --> 00:07:21,039
removed the grapple bars

197
00:07:25,589 --> 00:07:23,280
that's probably all i have to say as far

198
00:07:26,790 --> 00:07:25,599
as mission overview at this time

199
00:07:27,830 --> 00:07:26,800
and then i look forward to your

200
00:07:29,110 --> 00:07:27,840
questions

201
00:07:31,350 --> 00:07:29,120
thanks

202
00:07:33,430 --> 00:07:31,360
okay thank you gwen joel

203
00:07:35,430 --> 00:07:33,440
good afternoon everyone

204
00:07:37,749 --> 00:07:35,440
right now we are looking at very

205
00:07:39,830 --> 00:07:37,759
favorable conditions tomorrow morning

206
00:07:41,189 --> 00:07:39,840
for for the liftoff there are a couple

207
00:07:42,309 --> 00:07:41,199
minor issues that we're going to be

208
00:07:44,070 --> 00:07:42,319
tracking

209
00:07:45,830 --> 00:07:44,080
but right now they do appear to be very

210
00:07:47,749 --> 00:07:45,840
minor issues if i could get the

211
00:07:49,029 --> 00:07:47,759
satellite picture up on the monitor just

212
00:07:51,110 --> 00:07:49,039
kind of illustrate what we're going to

213
00:07:53,029 --> 00:07:51,120

be watching we had a frontal boundary

214
00:07:55,350 --> 00:07:53,039
move through central florida a couple

215
00:07:56,950 --> 00:07:55,360
days ago you can see that line of clouds

216
00:07:59,110 --> 00:07:56,960
over extreme south florida that's where

217
00:08:01,430 --> 00:07:59,120
that frontal boundary is right now and

218
00:08:03,110 --> 00:08:01,440
you can see the large area of clouds

219
00:08:04,550 --> 00:08:03,120
associated with it

220
00:08:06,230 --> 00:08:04,560
the other thing we're going to be

221
00:08:08,230 --> 00:08:06,240
tracking right now it's up in the

222
00:08:10,309 --> 00:08:08,240
northern plains of the u.s it's an upper

223
00:08:12,070 --> 00:08:10,319
level piece of energy that's going to be

224
00:08:15,189 --> 00:08:12,080
dropping south and southeast over the

225
00:08:17,270 --> 00:08:15,199
gulf of mexico over the next 24 hours

226
00:08:19,909 --> 00:08:17,280
and when this system does

227
00:08:21,589 --> 00:08:19,919
move over the gulf of mexico it could

228
00:08:23,430 --> 00:08:21,599
bring in a little bit of cloud cover

229
00:08:25,270 --> 00:08:23,440
we're not anticipating any rain or

230
00:08:27,270 --> 00:08:25,280
anything of that nature

231
00:08:29,350 --> 00:08:27,280
we there will be a little bit of cloud

232
00:08:30,790 --> 00:08:29,360
cover associated with this feature and

233
00:08:32,790 --> 00:08:30,800
we're going to be tracking this cloud

234
00:08:34,550 --> 00:08:32,800
cover to see if it would violate any of

235
00:08:35,670 --> 00:08:34,560
our natural and trigger lightning

236
00:08:37,750 --> 00:08:35,680
constraints

237
00:08:39,909 --> 00:08:37,760
now get a little more specific if this

238
00:08:41,909 --> 00:08:39,919

cloud cover right now we're looking at

239
00:08:44,949 --> 00:08:41,919
one of our rules named the thick cloud

240
00:08:47,110 --> 00:08:44,959
rule and quickly that cloud rules states

241
00:08:49,590 --> 00:08:47,120
that if clouds that are overhead it's a

242
00:08:52,389 --> 00:08:49,600
flight through rule if these clouds are

243
00:08:54,790 --> 00:08:52,399
4 500 feet thick or greater and any

244
00:08:56,230 --> 00:08:54,800
portion of those clouds are between

245
00:08:57,829 --> 00:08:56,240
where the freezing level is in the

246
00:08:59,910 --> 00:08:57,839
atmosphere and where the minus 20

247
00:09:02,230 --> 00:08:59,920
degrees celsius level is in the

248
00:09:03,190 --> 00:09:02,240
atmosphere now that would be a violation

249
00:09:04,949 --> 00:09:03,200
of our

250
00:09:07,430 --> 00:09:04,959
thick cloud rule now what we're

251
00:09:09,990 --> 00:09:07,440
forecasting tomorrow for the freezing

252
00:09:12,389 --> 00:09:10,000
level is around 10 000 feet

253
00:09:15,590 --> 00:09:12,399
and the 20 minus 20 degrees celsius

254
00:09:17,350 --> 00:09:15,600
level will be around 25 000 feet so what

255
00:09:18,710 --> 00:09:17,360
we're going to be looking for

256
00:09:21,430 --> 00:09:18,720
number one is they're going to be clouds

257
00:09:23,269 --> 00:09:21,440
over the flight path and number two

258
00:09:25,829 --> 00:09:23,279
will these clouds any portion of these

259
00:09:28,389 --> 00:09:25,839
clouds be between the 10 000 feet or

260
00:09:29,829 --> 00:09:28,399
freezing level and that minus 20 degrees

261
00:09:32,550 --> 00:09:29,839
celsius level which is going to be

262
00:09:34,070 --> 00:09:32,560
around 25 000 feet tomorrow if portion

263
00:09:35,030 --> 00:09:34,080

of those clouds are between those two

264
00:09:37,430 --> 00:09:35,040
levels

265
00:09:39,430 --> 00:09:37,440
and that cloud is 4500 feet thick that

266
00:09:41,430 --> 00:09:39,440
would be a violation now again it's a

267
00:09:43,829 --> 00:09:41,440
very very minor concern but that would

268
00:09:45,910 --> 00:09:43,839
be the only cloud-related issue that

269
00:09:47,829 --> 00:09:45,920
we'll we'll be monitoring but again

270
00:09:50,389 --> 00:09:47,839
right now we're only if i can go to the

271
00:09:52,230 --> 00:09:50,399
forecast charts for the launch

272
00:09:54,630 --> 00:09:52,240
basically we're going to be looking at

273
00:09:57,110 --> 00:09:54,640
two cloud decks the first one is a

274
00:09:58,630 --> 00:09:57,120
scattered deck at 4 000 feet and it's

275
00:10:00,630 --> 00:09:58,640
that second deck

276
00:10:03,590 --> 00:10:00,640
the bkn is a broken

277
00:10:05,590 --> 00:10:03,600
layer of clouds that bases around 14 000

278
00:10:08,870 --> 00:10:05,600
feet now it would be that layer of

279
00:10:11,269 --> 00:10:08,880
clouds that if it's over the pad greater

280
00:10:13,030 --> 00:10:11,279
than 4500 feet thick and between those

281
00:10:14,870 --> 00:10:13,040
two levels i mentioned earlier that

282
00:10:16,790 --> 00:10:14,880
would be a violation but again it's very

283
00:10:18,630 --> 00:10:16,800
very minor concern we're going to have

284
00:10:20,150 --> 00:10:18,640
good visibility tomorrow

285
00:10:21,670 --> 00:10:20,160
it's going to be breezy the winds will

286
00:10:24,470 --> 00:10:21,680
be out of the northwest over the next

287
00:10:26,790 --> 00:10:24,480
few days and it will be breezy into the

288
00:10:29,350 --> 00:10:26,800

low to mid teens tomorrow morning

289
00:10:31,829 --> 00:10:29,360
possibly up to 20 knots but well below

290
00:10:33,269 --> 00:10:31,839
the liftoff constraint of 30 knots so

291
00:10:36,389 --> 00:10:33,279
although it will be breezy we're not

292
00:10:38,230 --> 00:10:36,399
anticipating the liftoff winds to be

293
00:10:39,910 --> 00:10:38,240
an extreme concern

294
00:10:41,990 --> 00:10:39,920
right now i'm not expecting any weather

295
00:10:44,150 --> 00:10:42,000
per se as far as rain or thunderstorms

296
00:10:46,069 --> 00:10:44,160
so we're good there and the temperature

297
00:10:47,509 --> 00:10:46,079
at left off it will be cooler florida

298
00:10:52,630 --> 00:10:47,519
standards over the next few days it's

299
00:10:55,430 --> 00:10:54,069
hate to say that for folks up in the

300
00:10:57,910 --> 00:10:55,440
north right now but it's only going to

301
00:10:59,829 --> 00:10:57,920
be 60 degrees tomorrow morning

302
00:11:01,670 --> 00:10:59,839
at the beginning of the launch window

303
00:11:03,750 --> 00:11:01,680
and there's only a 20 percent chance of

304
00:11:06,389 --> 00:11:03,760
a violation or 80 percent chance of good

305
00:11:08,630 --> 00:11:06,399
weather for to uh tomorrow's liftoff

306
00:11:10,630 --> 00:11:08,640
with a thick cloud rule and the liftoff

307
00:11:11,750 --> 00:11:10,640
winds the only two areas of minor

308
00:11:14,150 --> 00:11:11,760
concern

309
00:11:16,550 --> 00:11:14,160
if we were to go into the 24 hour delay

310
00:11:18,230 --> 00:11:16,560
it's virtually the same forecast still

311
00:11:20,310 --> 00:11:18,240
going to be looking at northwest winds

312
00:11:22,630 --> 00:11:20,320
we still may have that cloud cover that

313
00:11:24,310 --> 00:11:22,640

i mentioned earlier over over the state

314
00:11:25,990 --> 00:11:24,320
and it would be the same thick cloud

315
00:11:28,389 --> 00:11:26,000
rule and liftoff winds that would be the

316
00:11:31,750 --> 00:11:28,399
minor concerns and still only a 20

317
00:11:34,230 --> 00:11:31,760
percent of 20 chance of a violation on a

318
00:11:36,310 --> 00:11:34,240
24-hour delay if that were to be needed

319
00:11:37,990 --> 00:11:36,320
but again overall weather looks good

320
00:11:39,590 --> 00:11:38,000
just a couple minor issues that we'll be

321
00:11:41,590 --> 00:11:39,600
tracking thank you

322
00:11:43,590 --> 00:11:41,600
all right joel thank you and we're ready

323
00:11:45,350 --> 00:11:43,600
to open it up for questions in addition

324
00:11:47,190 --> 00:11:45,360
to our members of the news media we're

325
00:11:49,670 --> 00:11:47,200
happy today to be joined by members of

326
00:11:52,069 --> 00:11:49,680
the nasa social who are in the room here

327
00:11:54,470 --> 00:11:52,079
at kennedy and ready to ask questions so

328
00:11:56,150 --> 00:11:54,480
we'll take as many questions as we can

329
00:11:58,470 --> 00:11:56,160
time permitting and please make sure to

330
00:11:59,990 --> 00:11:58,480
wait for the microphone state your name

331
00:12:01,590 --> 00:12:00,000
your affiliation and to whom you're

332
00:12:03,110 --> 00:12:01,600
addressing your question and we'll start

333
00:12:05,430 --> 00:12:03,120
with marcia dunn

334
00:12:06,710 --> 00:12:05,440
marcia and associated press um from his

335
00:12:08,470 --> 00:12:06,720
shot well i'm just wondering looking

336
00:12:10,389 --> 00:12:08,480
ahead when's the next

337
00:12:12,069 --> 00:12:10,399
dragon launch to the space station and

338
00:12:13,509 --> 00:12:12,079

for mike

339
00:12:15,190 --> 00:12:13,519
could you update on the schedule for

340
00:12:16,389 --> 00:12:15,200
orbital sciences and

341
00:12:20,310 --> 00:12:16,399
what they're hoping to achieve in the

342
00:12:25,350 --> 00:12:23,030
crs-3 is planned for late fall this year

343
00:12:29,430 --> 00:12:25,360
it will be the first uh crs mission that

344
00:12:34,150 --> 00:12:31,670
and uh let's see our orbital friends had

345
00:12:36,150 --> 00:12:34,160
their test firing

346
00:12:38,870 --> 00:12:36,160
hot fire test

347
00:12:41,430 --> 00:12:38,880
successfully completed on friday and so

348
00:12:44,230 --> 00:12:41,440
they're headed towards an early april

349
00:12:45,190 --> 00:12:44,240
uh test flight uh which puts a demo

350
00:12:47,670 --> 00:12:45,200
flight

351
00:12:49,590 --> 00:12:47,680
uh potentially in in the early uh summer

352
00:12:51,350 --> 00:12:49,600
time frame so that's what we're planning

353
00:12:56,790 --> 00:12:51,360
for

354
00:13:00,389 --> 00:12:56,800
gwen um are there any secondary payloads

355
00:13:01,670 --> 00:13:00,399
on board celestis orbcom

356
00:13:03,269 --> 00:13:01,680
no i don't believe there are no there's

357
00:13:05,829 --> 00:13:03,279
certainly no orbcom and i don't believe

358
00:13:07,509 --> 00:13:05,839
there's any celestos no this is all the

359
00:13:11,829 --> 00:13:07,519
determination of the

360
00:13:14,550 --> 00:13:11,839
engine uh issue with the crs one flight

361
00:13:17,430 --> 00:13:14,560
the uh what what was determined to be

362
00:13:20,069 --> 00:13:17,440
the cause sure there was a material flaw

363
00:13:22,710 --> 00:13:20,079

that went undetected in the

364
00:13:24,949 --> 00:13:22,720
in the jacket of the merlin engine

365
00:13:26,790 --> 00:13:24,959
resulting in a breach

366
00:13:28,790 --> 00:13:26,800
into the flight

367
00:13:30,629 --> 00:13:28,800
causing depressurization of the

368
00:13:32,829 --> 00:13:30,639
combustion chamber

369
00:13:34,629 --> 00:13:32,839
then the flight computer recognized that

370
00:13:36,230 --> 00:13:34,639
depressurization and then the commanded

371
00:13:37,590 --> 00:13:36,240
shutdown

372
00:13:38,550 --> 00:13:37,600
the vehicle

373
00:13:40,550 --> 00:13:38,560
went

374
00:13:42,870 --> 00:13:40,560
and continued along its trajectory and

375
00:13:45,189 --> 00:13:42,880
did drop dragon off in an orbit that

376
00:13:47,590 --> 00:13:45,199
allowed dragon to get to the space

377
00:13:49,430 --> 00:13:47,600
station actually 30 minutes earlier than

378
00:13:50,230 --> 00:13:49,440
planned

379
00:13:54,629 --> 00:13:50,240
so

380
00:13:56,949 --> 00:13:54,639
mission i want to point out that

381
00:13:58,790 --> 00:13:56,959
this vehicle has been designed to to

382
00:13:59,910 --> 00:13:58,800
accommodate an engine out

383
00:14:02,069 --> 00:13:59,920
and

384
00:14:03,509 --> 00:14:02,079
though you never necessarily want to see

385
00:14:05,590 --> 00:14:03,519
it happen it's nice that we've

386
00:14:07,590 --> 00:14:05,600
demonstrated uh the vehicle as it was

387
00:14:09,030 --> 00:14:07,600
designed

388
00:14:10,949 --> 00:14:09,040

what was the material

389
00:14:12,230 --> 00:14:10,959
you know i've got a very detailed report

390
00:14:13,990 --> 00:14:12,240
that's getting reviewed by state

391
00:14:15,750 --> 00:14:14,000
department right now

392
00:14:17,189 --> 00:14:15,760
as soon as that report has been reviewed

393
00:14:19,350 --> 00:14:17,199
and approved then i can give more

394
00:14:20,550 --> 00:14:19,360
details this is probably the

395
00:14:23,269 --> 00:14:20,560
kind of the

396
00:14:25,750 --> 00:14:23,279
toughest thing to talk about uh

397
00:14:27,189 --> 00:14:25,760
when it comes to uh itar

398
00:14:28,550 --> 00:14:27,199
engine failures anomalies and

399
00:14:30,870 --> 00:14:28,560
investigations i'm going to be a little

400
00:14:33,030 --> 00:14:30,880
bit conservative about it you mean the

401
00:14:35,030 --> 00:14:33,040
material of the engine or like a for

402
00:14:36,629 --> 00:14:35,040
like fod i mean it's a little unclear

403
00:14:39,269 --> 00:14:36,639
what you're talking about in the jacket

404
00:14:45,030 --> 00:14:42,230
todd uh todd halperson of florida today

405
00:14:46,949 --> 00:14:45,040
um even though it might be difficult i

406
00:14:49,829 --> 00:14:46,959
wonder if you could tell us what steps

407
00:14:53,110 --> 00:14:49,839
you've taken to prevent a recurrence of

408
00:14:56,629 --> 00:14:53,120
the engine out that you had and i'm also

409
00:14:58,629 --> 00:14:56,639
curious about how many launch attempts

410
00:15:00,389 --> 00:14:58,639
with the falcon 9 you can make in a row

411
00:15:03,430 --> 00:15:00,399
in the old shuttle world you know they'd

412
00:15:04,389 --> 00:15:03,440
usually try twice and then stand down a

413
00:15:07,189 --> 00:15:04,399

day

414
00:15:08,949 --> 00:15:07,199
i'm just wondering can you do three four

415
00:15:10,629 --> 00:15:08,959
five in a row

416
00:15:13,030 --> 00:15:10,639
i'll take the second question first i'm

417
00:15:15,350 --> 00:15:13,040
not aware of any uh issue that would

418
00:15:17,829 --> 00:15:15,360
cause us from a vehicle perspective to

419
00:15:19,750 --> 00:15:17,839
have to come back down

420
00:15:21,430 --> 00:15:19,760
and roll back into the hangar

421
00:15:24,069 --> 00:15:21,440
now there would be nasa cargo that we

422
00:15:25,350 --> 00:15:24,079
would have to deal with if we were to

423
00:15:26,949 --> 00:15:25,360
delay

424
00:15:28,790 --> 00:15:26,959
substantially

425
00:15:30,550 --> 00:15:28,800
as far as what we did to

426
00:15:31,509 --> 00:15:30,560
clear the engines for this particular

427
00:15:34,150 --> 00:15:31,519
flight

428
00:15:35,829 --> 00:15:34,160
we did extensive analysis obviously to

429
00:15:37,350 --> 00:15:35,839
understand the problem

430
00:15:38,870 --> 00:15:37,360
extensive

431
00:15:40,389 --> 00:15:38,880
assessment and testing on these

432
00:15:41,749 --> 00:15:40,399
particular engines

433
00:15:44,629 --> 00:15:41,759
the field of science that we're talking

434
00:15:46,069 --> 00:15:44,639
about is called nde non-destructive

435
00:15:48,629 --> 00:15:46,079
evaluation

436
00:15:50,310 --> 00:15:48,639
it's as much an art as a science

437
00:15:52,150 --> 00:15:50,320
and we certainly are getting much better

438
00:15:54,389 --> 00:15:52,160

at it as we

439
00:15:56,790 --> 00:15:54,399
as we mature here but i'm going to make

440
00:15:59,030 --> 00:15:56,800
a shameless call for any uh

441
00:16:01,110 --> 00:15:59,040
extraordinary nde experts that want to

442
00:16:03,749 --> 00:16:01,120
come and change the state of science or

443
00:16:09,189 --> 00:16:03,759
the state of the art we're hiring you at

444
00:16:14,550 --> 00:16:10,230
jason

445
00:16:17,430 --> 00:16:14,560
gwen you uh gave the uh total for about

446
00:16:19,030 --> 00:16:17,440
uh i'm going to look back at a pdf that

447
00:16:21,030 --> 00:16:19,040
i got here from that was issued from

448
00:16:23,430 --> 00:16:21,040
spacex

449
00:16:25,590 --> 00:16:23,440
20 000 kilograms i believe is the amount

450
00:16:27,590 --> 00:16:25,600
that you are required to launch the

451
00:16:30,069 --> 00:16:27,600
international space station per crs

452
00:16:31,910 --> 00:16:30,079
contract and given the numbers i had to

453
00:16:33,829 --> 00:16:31,920
do a little quick math there and forgive

454
00:16:36,870 --> 00:16:33,839
me if i'm a bit off but the total i've

455
00:16:38,949 --> 00:16:36,880
come up with is around 14 000

456
00:16:41,590 --> 00:16:38,959
can we expect a

457
00:16:42,949 --> 00:16:41,600
dramatic uptick in or at least an uptick

458
00:16:45,110 --> 00:16:42,959
in the amount that you're lifting per

459
00:16:46,470 --> 00:16:45,120
these flights or they remain fairly

460
00:16:49,030 --> 00:16:46,480
consistent

461
00:16:50,790 --> 00:16:49,040
kilograms to pound conversion being what

462
00:16:52,389 --> 00:16:50,800
it is i'm hoping my numbers aren't too

463
00:16:54,389 --> 00:16:52,399

far off thank you i think your numbers

464
00:16:56,230 --> 00:16:54,399
are off but i hate to do math in public

465
00:16:57,110 --> 00:16:56,240
so we can chat offline

466
00:16:59,430 --> 00:16:57,120
um

467
00:17:01,670 --> 00:16:59,440
but uh the

468
00:17:04,470 --> 00:17:01,680
the the car the cargo requirement is 20

469
00:17:06,309 --> 00:17:04,480
metric tons uh carriage up and back we

470
00:17:07,909 --> 00:17:06,319
will far exceed that with the 12

471
00:17:10,069 --> 00:17:07,919
missions that we have

472
00:17:12,549 --> 00:17:10,079
the upgraded falcon 9 launch vehicle

473
00:17:14,150 --> 00:17:12,559
will accommodate a dramatic increase in

474
00:17:15,990 --> 00:17:14,160
cargo as well

475
00:17:18,630 --> 00:17:16,000
so you will see an increased amount of

476
00:17:20,230 --> 00:17:18,640
cargo both due to probably nasa comfort

477
00:17:22,150 --> 00:17:20,240
with our maturity

478
00:17:23,829 --> 00:17:22,160
in getting to space station in addition

479
00:17:25,909 --> 00:17:23,839
uh the upgraded falcon 9 allows

480
00:17:27,990 --> 00:17:25,919
additional carriage of cargo

481
00:17:29,590 --> 00:17:28,000
upgraded uh falcon 9 when can we expect

482
00:17:30,870 --> 00:17:29,600
to see the first launch of that from

483
00:17:32,310 --> 00:17:30,880
from here i guess

484
00:17:33,909 --> 00:17:32,320
from the cape the first flight of that

485
00:17:35,830 --> 00:17:33,919
vehicle will be from vandenberg we'll be

486
00:17:36,950 --> 00:17:35,840
carrying the cassiopeia satellite for

487
00:17:38,470 --> 00:17:36,960
canada

488
00:17:39,909 --> 00:17:38,480

and that launch should occur uh the

489
00:17:41,990 --> 00:17:39,919
first half of this year probably late

490
00:17:43,430 --> 00:17:42,000
first half of this year late june then

491
00:17:45,590 --> 00:17:43,440
we have two additional commercial

492
00:17:47,270 --> 00:17:45,600
missions to fly

493
00:17:49,510 --> 00:17:47,280
right away they will be here from the

494
00:17:52,150 --> 00:17:49,520
cape uh both ses

495
00:17:56,630 --> 00:17:52,160
as well as tycom so we'll fly two gto

496
00:18:02,950 --> 00:17:56,640
flights uh right after cassiope and then

497
00:18:08,070 --> 00:18:05,669
robert palmin with collectspace.com

498
00:18:09,590 --> 00:18:08,080
what drove the flight day to rendezvous

499
00:18:11,350 --> 00:18:09,600
and grapple

500
00:18:14,150 --> 00:18:11,360
the accelerated schedule was there some

501
00:18:16,470 --> 00:18:14,160
particular need and excuse the levity

502
00:18:19,830 --> 00:18:16,480
but last time you flew ice cream

503
00:18:20,870 --> 00:18:19,840
anything uh sweet on board for the crew

504
00:18:22,390 --> 00:18:20,880
was that direct i'm assuming you

505
00:18:24,070 --> 00:18:22,400
directed that at me

506
00:18:26,789 --> 00:18:24,080
it's i think it's purely orbital

507
00:18:28,950 --> 00:18:26,799
geometry we just end up launching at a

508
00:18:31,669 --> 00:18:28,960
time when the space station is

509
00:18:34,390 --> 00:18:31,679
closer but accurate

510
00:18:37,590 --> 00:18:34,400
without going to orbital mechanics anya

511
00:18:39,909 --> 00:18:37,600
and then there is a crew package

512
00:18:42,789 --> 00:18:39,919
um it's a little bit healthier i think

513
00:18:44,470 --> 00:18:42,799

than the one that nasa sent last time

514
00:18:48,390 --> 00:18:44,480
it came from one of our employees

515
00:18:53,270 --> 00:18:51,029
okay over here tyler robertson with nasa

516
00:18:55,270 --> 00:18:53,280
social representing pinehead tv my

517
00:18:58,230 --> 00:18:55,280
question is about the solar arrays in a

518
00:18:59,750 --> 00:18:58,240
situation that they don't deploy how do

519
00:19:02,070 --> 00:18:59,760
what happens with the mission does it

520
00:19:03,510 --> 00:19:02,080
get truncated and then also what happens

521
00:19:05,029 --> 00:19:03,520
should they not function once they're

522
00:19:07,430 --> 00:19:05,039
deployed how does that affect the

523
00:19:10,150 --> 00:19:07,440
battery redundancy on board dragon

524
00:19:12,150 --> 00:19:10,160
that's a really good question

525
00:19:14,789 --> 00:19:12,160
i don't know the answer to that but i

526
00:19:16,789 --> 00:19:14,799
will follow up we do have very

527
00:19:18,549 --> 00:19:16,799
pretty extensive capacity batteries on

528
00:19:20,950 --> 00:19:18,559
dragon i just don't

529
00:19:23,590 --> 00:19:20,960
we might be able to make one attempt

530
00:19:25,029 --> 00:19:23,600
at birthing with the iss

531
00:19:27,029 --> 00:19:25,039
just on the batteries alone i don't know

532
00:19:28,549 --> 00:19:27,039
that's this from a system perspective we

533
00:19:29,669 --> 00:19:28,559
would consider doing that but let me let

534
00:19:31,510 --> 00:19:29,679
me follow up on that that's a good

535
00:19:32,310 --> 00:19:31,520
question

536
00:19:35,909 --> 00:19:32,320
bill

537
00:19:38,230 --> 00:19:35,919
question to mike

538
00:19:40,870 --> 00:19:38,240

that was a pretty dramatic uh event

539
00:19:42,549 --> 00:19:40,880
during crs-1 i mean i've never seen in

540
00:19:44,789 --> 00:19:42,559
25 years that much hardware come off a

541
00:19:46,549 --> 00:19:44,799
rocket and you still get to orbit um

542
00:19:48,070 --> 00:19:46,559
that's reality and it's a compliment to

543
00:19:49,350 --> 00:19:48,080
you gwen i guess because the thing did

544
00:19:51,350 --> 00:19:49,360
get to orbit as you say that was

545
00:19:52,710 --> 00:19:51,360
remarkable but what mike what do you

546
00:19:54,390 --> 00:19:52,720
what did you have to see to make you

547
00:19:55,990 --> 00:19:54,400
confident that they have in fact done

548
00:19:57,029 --> 00:19:56,000
what they need to do to make sure

549
00:19:59,029 --> 00:19:57,039
something like that doesn't happen again

550
00:20:01,110 --> 00:19:59,039
or something worse

551
00:20:02,870 --> 00:20:01,120
uh that's a good question bill um you

552
00:20:05,029 --> 00:20:02,880
know it's sort of uh

553
00:20:06,870 --> 00:20:05,039
a unique relationship that we have in

554
00:20:08,630 --> 00:20:06,880
the past and i've been asked this in

555
00:20:11,350 --> 00:20:08,640
public more than once

556
00:20:12,789 --> 00:20:11,360
in the past because of the

557
00:20:14,310 --> 00:20:12,799
build of the

558
00:20:15,110 --> 00:20:14,320
vehicles and the

559
00:20:17,029 --> 00:20:15,120
the

560
00:20:18,470 --> 00:20:17,039
taxpayers dollars used to build it we

561
00:20:20,870 --> 00:20:18,480
typically have been very open about

562
00:20:23,190 --> 00:20:20,880
everything that we have done and looked

563
00:20:24,310 --> 00:20:23,200

at and found within the boundaries of

564
00:20:27,510 --> 00:20:24,320
the law

565
00:20:29,590 --> 00:20:27,520
as they as they exist today and so

566
00:20:31,590 --> 00:20:29,600
with this new relationship we have two

567
00:20:33,510 --> 00:20:31,600
things we still have the same laws we

568
00:20:35,029 --> 00:20:33,520
have about export control and worrying

569
00:20:37,190 --> 00:20:35,039
about the itar

570
00:20:39,510 --> 00:20:37,200
but also we have proprietary information

571
00:20:41,590 --> 00:20:39,520
that that you don't want to get out into

572
00:20:43,909 --> 00:20:41,600
the open but the relationship we have

573
00:20:46,710 --> 00:20:43,919
with spacex is such that

574
00:20:48,390 --> 00:20:46,720
we we see anything that they see and we

575
00:20:50,230 --> 00:20:48,400
sat next to them and worked with them

576
00:20:52,789 --> 00:20:50,240
and provided some

577
00:20:54,789 --> 00:20:52,799
some assistance uh a little bit of

578
00:20:57,270 --> 00:20:54,799
expertise uh they borrowed some of our

579
00:21:00,470 --> 00:20:57,280
nde guys as as was shown so we could

580
00:21:02,630 --> 00:21:00,480
stare at uh at interesting uh i'll call

581
00:21:05,590 --> 00:21:02,640
them pictures for uh

582
00:21:07,669 --> 00:21:05,600
to keep it as as bland as possible but

583
00:21:09,510 --> 00:21:07,679
quite a bit of work was done to try to

584
00:21:12,310 --> 00:21:09,520
analyze the cause of the anomaly we

585
00:21:13,430 --> 00:21:12,320
participated in all of that

586
00:21:16,070 --> 00:21:13,440
we

587
00:21:17,669 --> 00:21:16,080
their extensive work was done on the

588
00:21:19,990 --> 00:21:17,679

history of the engines and the testing

589
00:21:21,750 --> 00:21:20,000
done to the engines prior to flight

590
00:21:23,590 --> 00:21:21,760
what they were exposed to how they were

591
00:21:24,950 --> 00:21:23,600
how they were inspected before they were

592
00:21:28,830 --> 00:21:24,960
assembled

593
00:21:32,230 --> 00:21:28,840
all of this work we went through with

594
00:21:34,310 --> 00:21:32,240
them and so the conclusions they came to

595
00:21:37,190 --> 00:21:34,320
we agree with the work they did to

596
00:21:39,510 --> 00:21:37,200
ensure that this vehicle is about to fly

597
00:21:42,870 --> 00:21:39,520
we agree with and and our role of course

598
00:21:44,789 --> 00:21:42,880
is nasa is to sit next to them and and

599
00:21:46,310 --> 00:21:44,799
and work with them and understand the

600
00:21:48,470 --> 00:21:46,320
anomaly so that we're comfortable we

601
00:21:50,230 --> 00:21:48,480
have we have two options as the customer

602
00:21:51,669 --> 00:21:50,240
we can either put our hardware on that

603
00:21:53,750 --> 00:21:51,679
vehicle or not

604
00:21:55,029 --> 00:21:53,760
and when we were done we we felt like

605
00:21:56,789 --> 00:21:55,039
the risk we were accepting with this

606
00:21:58,390 --> 00:21:56,799
flight was the same as we'd accepted

607
00:21:59,350 --> 00:21:58,400
with the previous flights

608
00:22:01,110 --> 00:21:59,360
and

609
00:22:03,350 --> 00:22:01,120
we put all the hardware we had we needed

610
00:22:04,710 --> 00:22:03,360
to fly on that vehicle so we wouldn't

611
00:22:06,149 --> 00:22:04,720
have any restrictions on the hardware

612
00:22:07,669 --> 00:22:06,159
that we put on this on this vehicle for

613
00:22:10,070 --> 00:22:07,679

this flight

614
00:22:13,029 --> 00:22:10,080
i'd like to clarify bill the uh

615
00:22:15,270 --> 00:22:13,039
the pieces that you saw uh in the plume

616
00:22:16,950 --> 00:22:15,280
were the fairing basically secondary

617
00:22:18,230 --> 00:22:16,960
structure i just didn't want anyone to

618
00:22:19,590 --> 00:22:18,240
think that uh

619
00:22:21,909 --> 00:22:19,600
that the engine flew off because that

620
00:22:24,549 --> 00:22:21,919
was there out in the blogs as well

621
00:22:28,149 --> 00:22:24,559
yep

622
00:22:30,470 --> 00:22:28,159
yeah hi dan billow with wesh tv for gwen

623
00:22:33,430 --> 00:22:30,480
shotwell um what would be the effect of

624
00:22:35,350 --> 00:22:33,440
a sequester on spacex's milestones for

625
00:22:37,110 --> 00:22:35,360
this year you have a lot of stuff going

626
00:22:39,430 --> 00:22:37,120
on at the launch pads out there and on

627
00:22:42,789 --> 00:22:39,440
the the goal stated in your press kit to

628
00:22:45,590 --> 00:22:42,799
launch astronauts by 2015.

629
00:22:47,909 --> 00:22:45,600
the sequester won't impact

630
00:22:50,630 --> 00:22:47,919
any of spacex's commercial business that

631
00:22:52,149 --> 00:22:50,640
we have this year

632
00:22:54,390 --> 00:22:52,159
mike will have to comment on

633
00:22:56,310 --> 00:22:54,400
sequestration and its possible impact on

634
00:22:57,750 --> 00:22:56,320
crs3

635
00:22:59,669 --> 00:22:57,760
as well i'd need someone from the

636
00:23:01,990 --> 00:22:59,679
commercial crew office to talk about any

637
00:23:04,870 --> 00:23:02,000
impact that they would have on the

638
00:23:08,789 --> 00:23:04,880

milestones that we plan to execute

639
00:23:11,590 --> 00:23:08,799
it's not up to me it's up to my customer

640
00:23:13,750 --> 00:23:11,600
uh from a sequestration standpoint our

641
00:23:14,870 --> 00:23:13,760
initial looks from an iss program

642
00:23:17,270 --> 00:23:14,880
perspective

643
00:23:20,390 --> 00:23:17,280
we won't get an impact that will cause

644
00:23:23,669 --> 00:23:20,400
us to change our plans in any way

645
00:23:25,909 --> 00:23:23,679
as we know it today

646
00:23:27,270 --> 00:23:25,919
ken hi ken kramer for space flight

647
00:23:29,110 --> 00:23:27,280
magazine um

648
00:23:30,390 --> 00:23:29,120
two questions for for gwen one is a

649
00:23:32,470 --> 00:23:30,400
follow-up actually i have a similar

650
00:23:34,070 --> 00:23:32,480
concern to jason about about the weight

651
00:23:36,470 --> 00:23:34,080
that you're carrying up

652
00:23:39,110 --> 00:23:36,480
um are you maxed out on the weight of

653
00:23:41,110 --> 00:23:39,120
this version of the uh falcon 9 and is

654
00:23:42,549 --> 00:23:41,120
it the maximum weight the other question

655
00:23:45,510 --> 00:23:42,559
i'm wondering is about there were some

656
00:23:48,390 --> 00:23:45,520
other anomalies on on the last flight

657
00:23:50,789 --> 00:23:48,400
related to the glacier freezer freezer

658
00:23:52,630 --> 00:23:50,799
and the um some of the computers that

659
00:23:53,909 --> 00:23:52,640
were made may not have been radiation

660
00:23:56,149 --> 00:23:53,919
hardened sufficiently one of them

661
00:23:57,510 --> 00:23:56,159
knocked out so um what have you done to

662
00:23:59,510 --> 00:23:57,520
address this please

663
00:24:02,310 --> 00:23:59,520

so the issue that we saw with glacier

664
00:24:05,190 --> 00:24:02,320
was there was some water intrusion uh

665
00:24:06,870 --> 00:24:05,200
uh in the um

666
00:24:09,269 --> 00:24:06,880
in the service section of the dragon

667
00:24:12,070 --> 00:24:09,279
capsule after we landed

668
00:24:13,909 --> 00:24:12,080
we have since put

669
00:24:15,350 --> 00:24:13,919
good measures in place this vehicle was

670
00:24:18,310 --> 00:24:15,360
largely built

671
00:24:21,190 --> 00:24:18,320
after after that vehicle after crs-2 or

672
00:24:23,190 --> 00:24:21,200
crs-1 landed so we put we retrofitted

673
00:24:24,789 --> 00:24:23,200
this vehicle uh to the extent we

674
00:24:26,710 --> 00:24:24,799
possibly could we think we've eliminated

675
00:24:28,470 --> 00:24:26,720
the issue the next dragon that we fly

676
00:24:31,510 --> 00:24:28,480
will have even more robust methods to

677
00:24:32,789 --> 00:24:31,520
keep water basically out of the of that

678
00:24:34,470 --> 00:24:32,799
particular element of the service

679
00:24:36,390 --> 00:24:34,480
section so basically water got into the

680
00:24:37,909 --> 00:24:36,400
service section um and i don't know

681
00:24:40,149 --> 00:24:37,919
exactly whether it shorted out some of

682
00:24:43,430 --> 00:24:40,159
the power to glacier or not um but the

683
00:24:45,110 --> 00:24:43,440
power was uh out on glacier until uh uh

684
00:24:47,190 --> 00:24:45,120
the recovery crew got dragging back on

685
00:24:48,710 --> 00:24:47,200
board so it was two between two hours

686
00:24:50,630 --> 00:24:48,720
two and three hours

687
00:24:52,789 --> 00:24:50,640
i think it was almost four almost four

688
00:24:56,149 --> 00:24:52,799

hours thanks for the correction um as

689
00:24:58,230 --> 00:24:56,159
far as the uh uh flight the dragon

690
00:25:00,310 --> 00:24:58,240
computer anomaly i don't want to say

691
00:25:01,830 --> 00:25:00,320
that it wasn't radiation hardened enough

692
00:25:03,029 --> 00:25:01,840
the system worked exactly it was

693
00:25:05,190 --> 00:25:03,039
designed to

694
00:25:07,669 --> 00:25:05,200
we are we've designed a electronics

695
00:25:09,590 --> 00:25:07,679
architecture that's radiation tolerant

696
00:25:11,990 --> 00:25:09,600
so we accept faults

697
00:25:14,390 --> 00:25:12,000
the systems recover and we continue to

698
00:25:16,230 --> 00:25:14,400
fly we did so there's three flight

699
00:25:18,870 --> 00:25:16,240
computers on dragon

700
00:25:20,710 --> 00:25:18,880
this particular item uh this particular

701
00:25:22,710 --> 00:25:20,720
fault uh took the

702
00:25:24,950 --> 00:25:22,720
that particular computer out of sync

703
00:25:28,149 --> 00:25:24,960
with the other two we did they were all

704
00:25:30,149 --> 00:25:28,159
three operational we decided for many

705
00:25:32,070 --> 00:25:30,159
reasons many i don't necessarily want to

706
00:25:33,909 --> 00:25:32,080
go into them here we decided to not

707
00:25:35,830 --> 00:25:33,919
resync up that third computer with the

708
00:25:38,070 --> 00:25:35,840
other two so we flew home on the two

709
00:25:40,230 --> 00:25:38,080
computers the system is designed to fly

710
00:25:41,590 --> 00:25:40,240
on one uh two represent some good

711
00:25:43,350 --> 00:25:41,600
redundancy

712
00:25:45,669 --> 00:25:43,360
we would have to have re-sunk that

713
00:25:47,669 --> 00:25:45,679

computer if we had if we took another

714
00:25:50,230 --> 00:25:47,679
fault so we have to leave station with

715
00:25:53,029 --> 00:25:51,269
okay

716
00:25:56,390 --> 00:25:53,039
you know i don't know if we're maxed out

717
00:25:58,710 --> 00:25:56,400
um up or not um

718
00:26:02,950 --> 00:25:58,720
we're probably close on this particular

719
00:26:02,960 --> 00:26:05,190
yeah

720
00:26:08,310 --> 00:26:06,230
daryl

721
00:26:10,470 --> 00:26:08,320
let's see but before you go on i'm sorry

722
00:26:11,750 --> 00:26:10,480
the glacier comment let

723
00:26:13,269 --> 00:26:11,760
i want to talk about that a little bit

724
00:26:15,430 --> 00:26:13,279
because there's enough

725
00:26:16,950 --> 00:26:15,440
discussion out in the airwaves that i

726
00:26:18,549 --> 00:26:16,960
ought to

727
00:26:20,149 --> 00:26:18,559
discuss it a bit you know glaciers are

728
00:26:22,549 --> 00:26:20,159
very important to us this is our way to

729
00:26:25,029 --> 00:26:22,559
get our our samples home

730
00:26:27,269 --> 00:26:25,039
after the demo mission uh when they

731
00:26:28,950 --> 00:26:27,279
first had this water intrusion problem

732
00:26:32,390 --> 00:26:28,960
in the in the service section and by the

733
00:26:33,909 --> 00:26:32,400
way this is not the pressurized volume

734
00:26:35,430 --> 00:26:33,919
of the capsule this is a lower portion

735
00:26:37,830 --> 00:26:35,440
of the capsule that's open to the

736
00:26:40,390 --> 00:26:37,840
environment

737
00:26:41,990 --> 00:26:40,400
spacex folks came to us and asked talk

738
00:26:44,230 --> 00:26:42,000

to us about the anomaly talk to us about

739
00:26:46,549 --> 00:26:44,240
the likelihood that the uh the power

740
00:26:49,110 --> 00:26:46,559
would fail to the glacier before the

741
00:26:51,590 --> 00:26:49,120
capsule was retrieved uh we talked about

742
00:26:53,669 --> 00:26:51,600
worst case best case scenarios and and

743
00:26:55,750 --> 00:26:53,679
based on that information we chose which

744
00:26:57,750 --> 00:26:55,760
samples to put in the glacier

745
00:26:59,830 --> 00:26:57,760
we filled the glacier up coming home and

746
00:27:01,669 --> 00:26:59,840
the samples were fine even with the with

747
00:27:03,830 --> 00:27:01,679
the lost power and

748
00:27:05,590 --> 00:27:03,840
and the the loss of power time i don't

749
00:27:07,990 --> 00:27:05,600
remember the exact time was within the

750
00:27:11,510 --> 00:27:08,000
window that we had analyzed

751
00:27:12,710 --> 00:27:11,520
for this for this flight uh the spacex

752
00:27:14,549 --> 00:27:12,720
team

753
00:27:17,269 --> 00:27:14,559
went to great lengths to go in and make

754
00:27:18,950 --> 00:27:17,279
mods to these particular boxes and the

755
00:27:20,470 --> 00:27:18,960
cables that lead into them to try to

756
00:27:23,350 --> 00:27:20,480
seal them up

757
00:27:25,269 --> 00:27:23,360
and we as as uh gwen said we have a

758
00:27:26,710 --> 00:27:25,279
modification of those boxes the

759
00:27:28,630 --> 00:27:26,720
permanent modification those boxes

760
00:27:30,470 --> 00:27:28,640
coming on the next on the next dragon

761
00:27:31,990 --> 00:27:30,480
but on this dragon in an attempt to give

762
00:27:34,230 --> 00:27:32,000
us a little more

763
00:27:35,590 --> 00:27:34,240

time they went off and and made a mod to

764
00:27:37,110 --> 00:27:35,600
the boxes they actually tested in a

765
00:27:39,430 --> 00:27:37,120
water chamber

766
00:27:41,029 --> 00:27:39,440
so we feel like our time to failure if

767
00:27:43,350 --> 00:27:41,039
it occurs is

768
00:27:44,870 --> 00:27:43,360
shorter and and using that information

769
00:27:46,830 --> 00:27:44,880
we went back to the researchers to

770
00:27:49,590 --> 00:27:46,840
decide which samples to bring home this

771
00:27:51,269 --> 00:27:49,600
time and in no case did any researcher

772
00:27:52,870 --> 00:27:51,279
want to not come home

773
00:27:54,310 --> 00:27:52,880
in this glacier so again we'll fly the

774
00:27:55,510 --> 00:27:54,320
glacier home with the research we need

775
00:27:57,350 --> 00:27:55,520
to bring home

776
00:27:58,630 --> 00:27:57,360
so this has not constrained us anyway

777
00:28:00,389 --> 00:27:58,640
and that was what i've been hearing a

778
00:28:04,870 --> 00:28:00,399
little bit about in the airways so i

779
00:28:10,870 --> 00:28:05,750
daryl

780
00:28:12,630 --> 00:28:10,880
charlie bolden wrote congress and told

781
00:28:14,710 --> 00:28:12,640
him that one of the milestones that

782
00:28:16,789 --> 00:28:14,720
couldn't be funded was the spacex

783
00:28:19,110 --> 00:28:16,799
in-flight abort test review what does

784
00:28:22,310 --> 00:28:19,120
that test and and would that not push

785
00:28:23,430 --> 00:28:22,320
out a return uh to american astronauts

786
00:28:25,350 --> 00:28:23,440
into space

787
00:28:28,230 --> 00:28:25,360
and then the question for nasa

788
00:28:30,630 --> 00:28:28,240

does the sequester uh does is it

789
00:28:32,389 --> 00:28:30,640
weighted towards commercial crew in

790
00:28:34,789 --> 00:28:32,399
terms of the cuts

791
00:28:37,430 --> 00:28:34,799
you want to answer first i'll go first

792
00:28:39,510 --> 00:28:37,440
so if sequestration occurs

793
00:28:41,750 --> 00:28:39,520
and if nasa

794
00:28:44,149 --> 00:28:41,760
has to decrease the commercial crew

795
00:28:46,549 --> 00:28:44,159
budget there will likely be an impact to

796
00:28:48,230 --> 00:28:46,559
our milestones my comment before was not

797
00:28:50,950 --> 00:28:48,240
to say that there isn't it's just that i

798
00:28:52,630 --> 00:28:50,960
don't know exactly what will occur

799
00:28:53,909 --> 00:28:52,640
i don't know that sequestration will

800
00:28:55,190 --> 00:28:53,919
occur although i have a pretty good

801
00:28:56,149 --> 00:28:55,200
guess

802
00:28:57,590 --> 00:28:56,159
and

803
00:28:59,350 --> 00:28:57,600
if it does occur

804
00:29:00,870 --> 00:28:59,360
i don't know what steps nasa is going to

805
00:29:02,470 --> 00:29:00,880
take i don't know what programs they're

806
00:29:03,510 --> 00:29:02,480
going to look at and i don't know how

807
00:29:06,630 --> 00:29:03,520
they're going to restructure their

808
00:29:10,389 --> 00:29:08,389
there has been some discussion about

809
00:29:12,070 --> 00:29:10,399
specific milestones

810
00:29:13,830 --> 00:29:12,080
out in the airwaves as mike would say

811
00:29:16,470 --> 00:29:13,840
but i've also heard other discussions as

812
00:29:18,070 --> 00:29:16,480
well so i just really rather not comment

813
00:29:19,750 --> 00:29:18,080

i'm happy to discuss it as soon as we

814
00:29:22,470 --> 00:29:19,760
know what what the funding will actually

815
00:29:26,950 --> 00:29:24,470
and i have enough time hard enough time

816
00:29:29,350 --> 00:29:26,960
keeping up with stations so i'm not i'm

817
00:29:32,070 --> 00:29:29,360
not aware of the splits i know what the

818
00:29:32,870 --> 00:29:32,080
impact is to the to iss and as i said

819
00:29:35,190 --> 00:29:32,880
it's

820
00:29:36,950 --> 00:29:35,200
uh we won't have an issue doing the

821
00:29:38,830 --> 00:29:36,960
program that we planned given what we've

822
00:29:40,470 --> 00:29:38,840
been told so

823
00:29:41,590 --> 00:29:40,480
far

824
00:29:44,070 --> 00:29:41,600
all right

825
00:29:46,310 --> 00:29:44,080
phillip sloss with nasaspaceflight.com a

826
00:29:48,389 --> 00:29:46,320
couple of grapple fixture questions uh

827
00:29:51,029 --> 00:29:48,399
first we're miss shotwell um do you have

828
00:29:52,549 --> 00:29:51,039
a breakdown of the the mass going up for

829
00:29:55,029 --> 00:29:52,559
the gravel fixtures and the flight

830
00:29:58,789 --> 00:29:55,039
support equipment on that i do so the

831
00:30:01,350 --> 00:29:58,799
grapple bars are 273 kilos i don't know

832
00:30:03,350 --> 00:30:01,360
if that mass includes the bundling

833
00:30:05,590 --> 00:30:03,360
equipment as well

834
00:30:07,669 --> 00:30:05,600
the fixed support equipment is a hundred

835
00:30:10,230 --> 00:30:07,679
kilos that's the that basically stays

836
00:30:11,350 --> 00:30:10,240
with the dragon

837
00:30:13,350 --> 00:30:11,360
and then

838
00:30:14,870 --> 00:30:13,360

for mr stafford um

839
00:30:17,110 --> 00:30:14,880
i believe that these are going to be

840
00:30:18,549 --> 00:30:17,120
placed on the mobile base system on a

841
00:30:21,669 --> 00:30:18,559
poa

842
00:30:23,350 --> 00:30:21,679
and then moved during an eva later in

843
00:30:25,110 --> 00:30:23,360
the year do you know

844
00:30:25,990 --> 00:30:25,120
where on the trusses those are going to

845
00:30:27,990 --> 00:30:26,000
go

846
00:30:29,430 --> 00:30:28,000
oh wow that is amazing first it's

847
00:30:33,990 --> 00:30:29,440
amazing that you're interested enough to

848
00:30:38,710 --> 00:30:36,789
i i'm racking my brain and i can't

849
00:30:40,310 --> 00:30:38,720
remember where they're gonna go i wish i

850
00:30:41,430 --> 00:30:40,320
could i wish i could tell you but we'll

851
00:30:42,549 --> 00:30:41,440
follow up with you and let you know

852
00:30:43,990 --> 00:30:42,559
that's an excellent question certainly

853
00:30:46,870 --> 00:30:44,000
one i ought to know

854
00:30:51,669 --> 00:30:49,430
hi um i have a two-part question so

855
00:30:54,789 --> 00:30:51,679
first to mike what does it mean to

856
00:30:57,669 --> 00:30:54,799
provide this kind of service to the iss

857
00:30:59,750 --> 00:30:57,679
and uh to gwen what does it mean uh

858
00:31:02,470 --> 00:30:59,760
for you as a company

859
00:31:03,990 --> 00:31:02,480
to provide a service like this to the

860
00:31:05,830 --> 00:31:04,000
united states

861
00:31:08,630 --> 00:31:05,840
and how does it feel to be sending up

862
00:31:11,509 --> 00:31:08,640
cargo for the second time

863
00:31:16,310 --> 00:31:12,230

if

864
00:31:18,230 --> 00:31:16,320
been trying to communicate to the

865
00:31:21,909 --> 00:31:18,240
outside world the international space

866
00:31:28,789 --> 00:31:24,710
fundamentally a research platform

867
00:31:30,070 --> 00:31:28,799
that is com unique and extremely capable

868
00:31:33,350 --> 00:31:30,080
and with it

869
00:31:34,950 --> 00:31:33,360
i expect that the individuals over the

870
00:31:36,549 --> 00:31:34,960
years will find things that were

871
00:31:37,990 --> 00:31:36,559
discovered or done on board space

872
00:31:40,310 --> 00:31:38,000
station that will affect their very

873
00:31:42,389 --> 00:31:40,320
lives in a in a profound way that's my

874
00:31:45,509 --> 00:31:42,399
belief

875
00:31:47,669 --> 00:31:45,519
and without without the spacex vehicle

876
00:31:49,509 --> 00:31:47,679
and and the other commercial vehicle we

877
00:31:52,710 --> 00:31:49,519
the simple answer is we won't be able to

878
00:31:54,070 --> 00:31:52,720
do that we with what we have in terms of

879
00:31:56,070 --> 00:31:54,080
of um

880
00:31:57,029 --> 00:31:56,080
other partner vehicles we could keep the

881
00:31:58,950 --> 00:31:57,039
station

882
00:32:01,830 --> 00:31:58,960
in orbit and the crews

883
00:32:03,909 --> 00:32:01,840
healthy but to get the kind of robust up

884
00:32:06,870 --> 00:32:03,919
and down that we require

885
00:32:08,630 --> 00:32:06,880
to do beneficial research that'll make a

886
00:32:10,630 --> 00:32:08,640
difference to us all and and make it

887
00:32:11,669 --> 00:32:10,640
worth the expense we paid to build this

888
00:32:13,190 --> 00:32:11,679

thing

889
00:32:14,950 --> 00:32:13,200
in the first place we have to have these

890
00:32:17,669 --> 00:32:14,960
kind of vehicles so

891
00:32:19,990 --> 00:32:17,679
that's why at the beginning today i i

892
00:32:22,310 --> 00:32:20,000
i said this is an integral part of the

893
00:32:24,070 --> 00:32:22,320
research we do onboard iss you need the

894
00:32:25,750 --> 00:32:24,080
iss you need the platform but you need

895
00:32:27,509 --> 00:32:25,760
the system to allow you

896
00:32:29,750 --> 00:32:27,519
to bring stuff up bring stuff down and

897
00:32:31,190 --> 00:32:29,760
it's got to be in a in a way that you

898
00:32:33,509 --> 00:32:31,200
can can

899
00:32:35,269 --> 00:32:33,519
deal with when you get home so not only

900
00:32:36,950 --> 00:32:35,279
do we have a pressurized system coming

901
00:32:37,990 --> 00:32:36,960
home we have a pressurized system allows

902
00:32:39,909 --> 00:32:38,000
us to have

903
00:32:42,470 --> 00:32:39,919
uh refrigeration which is very important

904
00:32:45,430 --> 00:32:42,480
to our samples that

905
00:32:47,029 --> 00:32:45,440
that we fix on orbit in that fashion in

906
00:32:49,029 --> 00:32:47,039
addition that in the near future you'll

907
00:32:51,430 --> 00:32:49,039
hear us start talking about flying

908
00:32:53,590 --> 00:32:51,440
rodents again flying mice again

909
00:32:55,750 --> 00:32:53,600
this is very important to

910
00:32:57,590 --> 00:32:55,760
osteoporosis type research and other

911
00:32:59,190 --> 00:32:57,600
types of research and

912
00:33:01,830 --> 00:32:59,200
and that will push the limits of what

913
00:33:04,310 --> 00:33:01,840

spacex can do and what we can do but but

914
00:33:05,990 --> 00:33:04,320
that's why we have a a space station and

915
00:33:08,630 --> 00:33:06,000
that's that's what we're supposed to be

916
00:33:13,830 --> 00:33:08,640
doing so it's it's very significant to

917
00:33:18,389 --> 00:33:15,909
i'm not i will never forget the moment

918
00:33:20,789 --> 00:33:18,399
when we found out that we were awarded

919
00:33:21,669 --> 00:33:20,799
the cots agreement

920
00:33:26,230 --> 00:33:21,679
in

921
00:33:28,070 --> 00:33:26,240
exactly the statement that elon make and

922
00:33:29,269 --> 00:33:28,080
i will refrain because we're

923
00:33:31,430 --> 00:33:29,279
on tv

924
00:33:34,310 --> 00:33:31,440
and children can watch but it was

925
00:33:36,549 --> 00:33:34,320
freaking awesome i can tell you that um

926
00:33:38,070 --> 00:33:36,559
and i ca it hasn't gotten any less

927
00:33:40,870 --> 00:33:38,080
exciting

928
00:33:42,710 --> 00:33:40,880
since that moment so we are so proud

929
00:33:44,549 --> 00:33:42,720
that nasa selected us

930
00:33:45,590 --> 00:33:44,559
i'm so proud of the team that was able

931
00:33:47,669 --> 00:33:45,600
to

932
00:33:49,269 --> 00:33:47,679
make this capability

933
00:33:51,029 --> 00:33:49,279
in the time frame and the budgets that

934
00:33:52,870 --> 00:33:51,039
we had allotted and had two great

935
00:33:54,389 --> 00:33:52,880
missions under our belt

936
00:33:56,389 --> 00:33:54,399
and a third one

937
00:33:59,269 --> 00:33:56,399
to come tomorrow

938
00:34:03,909 --> 00:34:01,430

it's it's it's extraordinary spacex is

939
00:34:05,190 --> 00:34:03,919
really a special place

940
00:34:06,230 --> 00:34:05,200
i know we have some questions in the

941
00:34:07,830 --> 00:34:06,240
back of the room and we'll get a

942
00:34:10,069 --> 00:34:07,840
microphone to you as soon as we can but

943
00:34:12,389 --> 00:34:10,079
let's take a question from jason this

944
00:34:13,829 --> 00:34:12,399
one is uh for for mike and i'm kind of

945
00:34:15,589 --> 00:34:13,839
glad that gwen talked about her

946
00:34:16,710 --> 00:34:15,599
impressions on cots uh you know for

947
00:34:19,589 --> 00:34:16,720
those of us that follow the space

948
00:34:21,669 --> 00:34:19,599
program launch vehicles usually

949
00:34:23,030 --> 00:34:21,679
within their first few launches 75

950
00:34:26,470 --> 00:34:23,040
percent of them

951
00:34:30,310 --> 00:34:26,480
experience a failure a dramatic failure

952
00:34:33,270 --> 00:34:30,320
spacex has beaten that in in triplicate

953
00:34:34,950 --> 00:34:33,280
oh am i jinxing you

954
00:34:36,230 --> 00:34:34,960
uh i wanted to get you and not only that

955
00:34:38,550 --> 00:34:36,240
but more importantly the question goes

956
00:34:39,669 --> 00:34:38,560
to uh the last mission as irene pointed

957
00:34:41,990 --> 00:34:39,679
out that

958
00:34:43,349 --> 00:34:42,000
they had they had an anomaly and they

959
00:34:44,869 --> 00:34:43,359
turned it around fairly quickly and here

960
00:34:46,230 --> 00:34:44,879
they are launching again what are your

961
00:34:48,389 --> 00:34:46,240
thoughts about i mean what's your

962
00:34:52,710 --> 00:34:48,399
impression what spacex is doing out here

963
00:35:02,069 --> 00:34:54,629

you're saying since i came from nasa we

964
00:35:06,310 --> 00:35:03,750
um

965
00:35:09,190 --> 00:35:06,320
well what your worry is it's it's all

966
00:35:11,349 --> 00:35:09,200
about uh what your driving force is and

967
00:35:13,030 --> 00:35:11,359
and how you balance your risk right

968
00:35:14,870 --> 00:35:13,040
um and so these guys are a commercial

969
00:35:16,230 --> 00:35:14,880
company and it doesn't do them any good

970
00:35:17,990 --> 00:35:16,240
they don't make any money sitting on the

971
00:35:19,510 --> 00:35:18,000
ground so their job is to get back to

972
00:35:21,109 --> 00:35:19,520
flying but if their customers not

973
00:35:23,109 --> 00:35:21,119
comfortable and i don't mean just nasa

974
00:35:24,550 --> 00:35:23,119
anybody wants to fly on them

975
00:35:26,950 --> 00:35:24,560
that it's not a reliable system it

976
00:35:28,870 --> 00:35:26,960
doesn't do them any good either so

977
00:35:30,470 --> 00:35:28,880
that's the backdrop that we got started

978
00:35:31,589 --> 00:35:30,480
it really was

979
00:35:33,349 --> 00:35:31,599
a um

980
00:35:34,310 --> 00:35:33,359
it was a conversation it's been a it's

981
00:35:36,310 --> 00:35:34,320
been a

982
00:35:37,270 --> 00:35:36,320
a group effort to go through this we

983
00:35:39,990 --> 00:35:37,280
have been

984
00:35:42,870 --> 00:35:40,000
arm in arm with with our spacex friends

985
00:35:45,190 --> 00:35:42,880
and i can tell you there is nothing that

986
00:35:47,910 --> 00:35:45,200
we would have done

987
00:35:49,589 --> 00:35:47,920
uh that they chose not to do

988
00:35:51,750 --> 00:35:49,599

when it comes to which which you believe

989
00:35:53,829 --> 00:35:51,760
is absolutely mandatory to to try to

990
00:35:56,150 --> 00:35:53,839
sort through this anomaly so

991
00:35:58,310 --> 00:35:56,160
and then recover from it

992
00:36:00,069 --> 00:35:58,320
are there more conservative things one

993
00:36:02,710 --> 00:36:00,079
could choose to do

994
00:36:05,109 --> 00:36:02,720
uh yes would nasa have done them i don't

995
00:36:06,550 --> 00:36:05,119
think so um i think these guys did

996
00:36:08,310 --> 00:36:06,560
everything that

997
00:36:09,510 --> 00:36:08,320
that you should do for the spacecraft

998
00:36:11,910 --> 00:36:09,520
that you're flying in the job you're

999
00:36:13,510 --> 00:36:11,920
trying to do with it so

1000
00:36:15,190 --> 00:36:13,520
i i wouldn't go as far as say if this is

1001
00:36:16,150 --> 00:36:15,200
completely nasa vehicle we'd be flying

1002
00:36:18,470 --> 00:36:16,160
again

1003
00:36:21,030 --> 00:36:18,480
but i can tell you that the the nasa

1004
00:36:24,069 --> 00:36:21,040
experts in all the different areas

1005
00:36:25,990 --> 00:36:24,079
uh that that had to participate to

1006
00:36:27,910 --> 00:36:26,000
really understand the anomaly that

1007
00:36:28,950 --> 00:36:27,920
they're dealt with and the physics

1008
00:36:30,310 --> 00:36:28,960
around it

1009
00:36:32,790 --> 00:36:30,320
were

1010
00:36:34,550 --> 00:36:32,800
in lockstep with what was decided to do

1011
00:36:35,990 --> 00:36:34,560
along the way the analysis was done the

1012
00:36:38,069 --> 00:36:36,000
testing that was done

1013
00:36:39,829 --> 00:36:38,079

and ultimately the nde was done to

1014
00:36:41,990 --> 00:36:39,839
confirm that the vehicle about to fly is

1015
00:36:43,589 --> 00:36:42,000
in in good shape and so

1016
00:36:45,430 --> 00:36:43,599
um you know it's all about your

1017
00:36:47,030 --> 00:36:45,440
priorities and pushing the team and

1018
00:36:48,630 --> 00:36:47,040
making sure they have the resources they

1019
00:36:49,829 --> 00:36:48,640
need to get the job done as quick as

1020
00:36:51,910 --> 00:36:49,839
they can

1021
00:36:56,390 --> 00:36:51,920
and and i think that's what our spacex

1022
00:37:01,109 --> 00:36:59,349
irene klotz with reuters again for gwen

1023
00:37:03,589 --> 00:37:01,119
um could you just give us an update on

1024
00:37:07,349 --> 00:37:03,599
where things stand with the vandenberg

1025
00:37:10,390 --> 00:37:07,359
operations and also the um

1026
00:37:12,310 --> 00:37:10,400
any any progress on selecting a third

1027
00:37:13,910 --> 00:37:12,320
launch site

1028
00:37:16,150 --> 00:37:13,920
so we're

1029
00:37:17,190 --> 00:37:16,160
making tremendous progress at vandenberg

1030
00:37:18,870 --> 00:37:17,200
the site

1031
00:37:20,790 --> 00:37:18,880
could potentially be ready here in the

1032
00:37:22,550 --> 00:37:20,800
next month or so

1033
00:37:24,630 --> 00:37:22,560
to fly a vehicle

1034
00:37:27,030 --> 00:37:24,640
um so we made great progress it was a

1035
00:37:29,510 --> 00:37:27,040
great uh great team effort

1036
00:37:31,829 --> 00:37:29,520
we had a lot of great support the

1037
00:37:33,670 --> 00:37:31,839
vandenberg team itself is quite small

1038
00:37:35,829 --> 00:37:33,680

air force was extraordinary to work with

1039
00:37:38,550 --> 00:37:35,839
we r we built that site really very

1040
00:37:42,470 --> 00:37:39,990
so as far as a commercial site goes

1041
00:37:44,630 --> 00:37:42,480
we'll we're continuing to make progress

1042
00:37:46,870 --> 00:37:44,640
at numerous locations

1043
00:37:48,950 --> 00:37:46,880
we still haven't done a final selection

1044
00:37:51,270 --> 00:37:48,960
there's still hurdles to to get through

1045
00:37:52,550 --> 00:37:51,280
in almost every location

1046
00:37:54,870 --> 00:37:52,560
so we're going to continue to work

1047
00:37:58,069 --> 00:37:54,880
multiple paths till we until we click on

1048
00:38:01,510 --> 00:37:59,030
okay

1049
00:38:03,829 --> 00:38:01,520
um question is for gwen about the falcon

1050
00:38:05,670 --> 00:38:03,839
9 upgrades is that the merlin 1d that's

1051
00:38:07,750 --> 00:38:05,680
on there and then any other upgrades on

1052
00:38:09,190 --> 00:38:07,760
that and then the other question is has

1053
00:38:11,430 --> 00:38:09,200
there been a difference in the way since

1054
00:38:12,710 --> 00:38:11,440
so much attention was brought to crs1

1055
00:38:14,470 --> 00:38:12,720
with the engines is there a difference

1056
00:38:15,510 --> 00:38:14,480
in how you guys have tested or a number

1057
00:38:19,030 --> 00:38:15,520
of times that you guys have tested

1058
00:38:21,589 --> 00:38:19,040
between that launch and this launch

1059
00:38:23,109 --> 00:38:21,599
let me get your last question first i i

1060
00:38:25,349 --> 00:38:23,119
don't think there's been any change in

1061
00:38:28,230 --> 00:38:25,359
the the actual engine firing testing

1062
00:38:29,670 --> 00:38:28,240
that we're doing on on these engines

1063
00:38:31,670 --> 00:38:29,680

we have

1064
00:38:33,270 --> 00:38:31,680
gone through and added a lot of

1065
00:38:35,349 --> 00:38:33,280
additional

1066
00:38:37,430 --> 00:38:35,359
nde i'm sorry i hate using acronyms the

1067
00:38:39,589 --> 00:38:37,440
non-destructive evaluation guys

1068
00:38:41,750 --> 00:38:39,599
we've done a lot we're doing a lot more

1069
00:38:44,069 --> 00:38:41,760
there now the merlin 1d is not

1070
00:38:46,710 --> 00:38:44,079
susceptible to the issue that we did see

1071
00:38:48,870 --> 00:38:46,720
on the crs-1 flight however

1072
00:38:50,470 --> 00:38:48,880
so the the upgraded falcon 9 does have a

1073
00:38:52,950 --> 00:38:50,480
substantial upgrade on the engines the

1074
00:38:54,910 --> 00:38:52,960
1d is uh even more of a screamer than

1075
00:38:58,069 --> 00:38:54,920
the 1c was uh

1076
00:39:00,150 --> 00:38:58,079
150 000 pounds of thrust at sea level

1077
00:39:02,310 --> 00:39:00,160
with versus all under 100 000 pounds of

1078
00:39:04,310 --> 00:39:02,320
thrust for the 1c

1079
00:39:05,430 --> 00:39:04,320
and given that extra thrust you have to

1080
00:39:07,430 --> 00:39:05,440
extend the tanks right you have to

1081
00:39:11,510 --> 00:39:07,440
leverage put more propellant through

1082
00:39:15,109 --> 00:39:13,270
those are the major the major upgrades

1083
00:39:17,030 --> 00:39:15,119
so it was a performance enhancement as

1084
00:39:19,510 --> 00:39:17,040
well as this vehicle is more easily

1085
00:39:22,390 --> 00:39:19,520
manufactured

1086
00:39:24,390 --> 00:39:22,400
marcia marcia done associated press for

1087
00:39:26,069 --> 00:39:24,400
miss shot well you mentioned 2 700

1088
00:39:28,870 --> 00:39:26,079

pounds of stuff

1089
00:39:30,470 --> 00:39:28,880
was that going up because the spacex

1090
00:39:32,150 --> 00:39:30,480
press kit and all the other handouts

1091
00:39:34,310 --> 00:39:32,160
seem to indicate half that weight so i'm

1092
00:39:36,069 --> 00:39:34,320
just trying to clarify

1093
00:39:38,310 --> 00:39:36,079
give or take how much

1094
00:39:40,550 --> 00:39:38,320
cargo is going up aboard the dragon and

1095
00:39:42,870 --> 00:39:40,560
for mike is any of it one of a kind or

1096
00:39:44,790 --> 00:39:42,880
urgently needed equipment anything like

1097
00:39:46,790 --> 00:39:44,800
that on board

1098
00:39:49,190 --> 00:39:46,800
so let me run through the numbers and

1099
00:39:50,310 --> 00:39:49,200
you can tell me if i'm wrong

1100
00:39:54,870 --> 00:39:50,320
in public

1101
00:39:57,349 --> 00:39:54,880
i've got 677 kilos of pressurized cargo

1102
00:39:58,630 --> 00:39:57,359
and the packaging

1103
00:40:00,390 --> 00:39:58,640
that's the pressurized stuff the

1104
00:40:04,069 --> 00:40:00,400
unpressurized the grapple bars and all

1105
00:40:08,309 --> 00:40:04,079
its support equipment is 373 kilos

1106
00:40:16,150 --> 00:40:11,349
1050 kilos up

1107
00:40:20,550 --> 00:40:18,790
for a total of around 2400 kilos if you

1108
00:40:21,990 --> 00:40:20,560
multiplied by

1109
00:40:23,589 --> 00:40:22,000
12

1110
00:40:27,030 --> 00:40:23,599
you would have more than the 20 metric

1111
00:40:34,470 --> 00:40:29,750
required under crs and that's as far as

1112
00:40:39,109 --> 00:40:37,430
is there anything special or unique

1113
00:40:40,550 --> 00:40:39,119

let's see the one thing that comes to

1114
00:40:42,550 --> 00:40:40,560
mind other than all the research about

1115
00:40:44,150 --> 00:40:42,560
half of that is half of the pressurized

1116
00:40:46,150 --> 00:40:44,160
is research hardware

1117
00:40:48,150 --> 00:40:46,160
um so um

1118
00:40:49,670 --> 00:40:48,160
of the pressurized

1119
00:40:51,910 --> 00:40:49,680
we are flying

1120
00:40:53,510 --> 00:40:51,920
dash four beds these are the first dash

1121
00:40:57,109 --> 00:40:53,520
four beds we'll fly for the carbon

1122
00:40:58,790 --> 00:40:57,119
dioxide removal system

1123
00:41:01,030 --> 00:40:58,800
which is

1124
00:41:03,349 --> 00:41:01,040
pretty significant the the carbon

1125
00:41:04,309 --> 00:41:03,359
dioxide removal system

1126
00:41:06,790 --> 00:41:04,319
is

1127
00:41:08,550 --> 00:41:06,800
infamous as it was the only system that

1128
00:41:10,630 --> 00:41:08,560
didn't activate

1129
00:41:13,030 --> 00:41:10,640
properly when we activated the lab and

1130
00:41:14,470 --> 00:41:13,040
it has continued to provide us

1131
00:41:16,790 --> 00:41:14,480
challenges along the way and we've

1132
00:41:19,030 --> 00:41:16,800
sorted out one of the big challenges had

1133
00:41:20,870 --> 00:41:19,040
to do with the the dust that's created

1134
00:41:22,950 --> 00:41:20,880
inside these beds

1135
00:41:24,870 --> 00:41:22,960
over time and the dash 4 gives us an

1136
00:41:26,470 --> 00:41:24,880
opportunity to

1137
00:41:28,550 --> 00:41:26,480
eliminate that

1138
00:41:30,630 --> 00:41:28,560

that concern and also gives us an

1139
00:41:32,790 --> 00:41:30,640
ability to clean out the to eliminate

1140
00:41:35,510 --> 00:41:32,800
the concerns by creating

1141
00:41:37,750 --> 00:41:35,520
screens or or filters and then of course

1142
00:41:39,430 --> 00:41:37,760
those get plugged up so these beds are

1143
00:41:41,349 --> 00:41:39,440
unique in that one of the capabilities

1144
00:41:43,589 --> 00:41:41,359
they have is the ability to clean the

1145
00:41:45,990 --> 00:41:43,599
the filters if you have to so these beds

1146
00:41:47,430 --> 00:41:46,000
are very important to us also during the

1147
00:41:48,870 --> 00:41:47,440
docked we're gonna take advantage of

1148
00:41:50,230 --> 00:41:48,880
spacex during the dock period we're

1149
00:41:51,430 --> 00:41:50,240
going to we're going to change out these

1150
00:41:53,430 --> 00:41:51,440
two beds

1151
00:41:54,870 --> 00:41:53,440
into one of the two carbon dioxide

1152
00:41:56,950 --> 00:41:54,880
removal systems

1153
00:41:59,670 --> 00:41:56,960
that are on the on iss and then we

1154
00:42:01,829 --> 00:41:59,680
remove the return those two beds home

1155
00:42:04,150 --> 00:42:01,839
we're doing that so we can turn those

1156
00:42:04,870 --> 00:42:04,160
three beds into fours and fly them later

1157
00:42:06,390 --> 00:42:04,880
so

1158
00:42:08,309 --> 00:42:06,400
those are unique of course the grapple

1159
00:42:10,230 --> 00:42:08,319
bars are are unique they're one of a

1160
00:42:11,430 --> 00:42:10,240
kind as well

1161
00:42:14,870 --> 00:42:11,440
so those are ones that come to mind off

1162
00:42:18,390 --> 00:42:16,950
matt welch from the social media group

1163
00:42:20,390 --> 00:42:18,400

uh i was wondering when if you could

1164
00:42:23,190 --> 00:42:20,400
comment on uh future plans for the

1165
00:42:25,589 --> 00:42:23,200
falcon 9 rocket after either your

1166
00:42:28,710 --> 00:42:25,599
contract with nasa is up um is it just

1167
00:42:29,910 --> 00:42:28,720
for fairing uh dragon missions or uh

1168
00:42:32,550 --> 00:42:29,920
um

1169
00:42:34,069 --> 00:42:32,560
beyond satellites and things like that

1170
00:42:36,470 --> 00:42:34,079
there's no question that falcon 9 is

1171
00:42:38,950 --> 00:42:36,480
designed to carry both dragon as well as

1172
00:42:40,710 --> 00:42:38,960
satellites into orbit the next flight

1173
00:42:42,470 --> 00:42:40,720
after this one will be a satellite

1174
00:42:45,109 --> 00:42:42,480
delivery to orbit flight

1175
00:42:47,670 --> 00:42:45,119
of cassiopei and then as i said earlier

1176
00:42:49,910 --> 00:42:47,680
we'll do two gto missions one for ses

1177
00:42:52,230 --> 00:42:49,920
and then one for tycom

1178
00:42:54,710 --> 00:42:52,240
i meant like after you finish both the

1179
00:42:56,710 --> 00:42:54,720
the dragon and the satellite missions uh

1180
00:42:59,349 --> 00:42:56,720
possibly either is it powerful enough to

1181
00:43:01,510 --> 00:42:59,359
carry humans or any other

1182
00:43:02,950 --> 00:43:01,520
types of cargo beyond i guess your

1183
00:43:05,510 --> 00:43:02,960
current contracts

1184
00:43:08,069 --> 00:43:05,520
the falcon 9 is the the launch vehicle

1185
00:43:10,829 --> 00:43:08,079
that will carry our crew dragon

1186
00:43:13,990 --> 00:43:10,839
to station and other destinations

1187
00:43:16,630 --> 00:43:14,000
yes okay over here hi there uh cameron

1188
00:43:18,309 --> 00:43:16,640

cory social media um as gwen had said

1189
00:43:21,430 --> 00:43:18,319
this is the last flight of the uh the

1190
00:43:24,390 --> 00:43:21,440
falcon 10 flying the merlin 1c engines

1191
00:43:27,109 --> 00:43:24,400
um they are in a grid fashion at the

1192
00:43:29,510 --> 00:43:27,119
moment okay now with the falcon 1-1

1193
00:43:31,190 --> 00:43:29,520
they're going to a circular pattern with

1194
00:43:36,069 --> 00:43:31,200
one in the middle is there any sort of

1195
00:43:43,190 --> 00:43:37,750
i'm sure there's a benefit or we

1196
00:43:47,670 --> 00:43:45,270
i don't know i don't know the specifics

1197
00:43:50,390 --> 00:43:47,680
however uh just makes some engineering

1198
00:43:52,470 --> 00:43:50,400
sense that uh to punch the load from the

1199
00:43:55,750 --> 00:43:52,480
engines into the skin it's better to be

1200
00:43:58,150 --> 00:43:55,760
along the the circumference of the skin

1201
00:44:00,790 --> 00:43:58,160
so there's only one engine that isn't

1202
00:44:02,470 --> 00:44:00,800
close closely uh directed at the at the

1203
00:44:05,349 --> 00:44:02,480
skin which basically carries the load

1204
00:44:09,270 --> 00:44:07,270
hi ken kramer for universe today for

1205
00:44:10,790 --> 00:44:09,280
gwen uh two questions uh go back to

1206
00:44:12,710 --> 00:44:10,800
vandenberg for a minute can you tell us

1207
00:44:14,630 --> 00:44:12,720
about uh the status progress of the

1208
00:44:18,470 --> 00:44:14,640
falcon 9 heavy what would be the first

1209
00:44:20,309 --> 00:44:18,480
payload and do you envision any any uh

1210
00:44:23,270 --> 00:44:20,319
involvement with this proposed dennis

1211
00:44:26,390 --> 00:44:23,280
tito mission to mars thanks

1212
00:44:28,470 --> 00:44:26,400
okay so vandenberg is being built to

1213
00:44:31,109 --> 00:44:28,480

accommodate the falcon 9 single core as

1214
00:44:32,710 --> 00:44:31,119
well as the falcon heavy um all at the

1215
00:44:35,109 --> 00:44:32,720
same time i don't want to say that there

1216
00:44:37,190 --> 00:44:35,119
aren't things to do at vandenberg after

1217
00:44:38,550 --> 00:44:37,200
we fly this first single core falcon 9

1218
00:44:39,589 --> 00:44:38,560
there there's probably some additional

1219
00:44:41,030 --> 00:44:39,599
work to do

1220
00:44:42,790 --> 00:44:41,040
to accommodate the heavy i don't know

1221
00:44:43,750 --> 00:44:42,800
the specific details of it but it was

1222
00:44:48,069 --> 00:44:43,760
designed from the beginning to

1223
00:44:51,750 --> 00:44:49,990
the heavy flight i'm not talking yet

1224
00:44:53,270 --> 00:44:51,760
about the payload uh what we're going to

1225
00:44:54,950 --> 00:44:53,280
plan to do there but that vehicle should

1226
00:44:56,710 --> 00:44:54,960
be built late this year and we'll lift

1227
00:44:58,550 --> 00:44:56,720
off as quickly as we can

1228
00:45:01,430 --> 00:44:58,560
from vandenberg with the heavy and then

1229
00:45:04,950 --> 00:45:01,440
as far as the the dennis tito flight i

1230
00:45:06,470 --> 00:45:04,960
think his plan is very ambitious

1231
00:45:08,309 --> 00:45:06,480
we

1232
00:45:10,230 --> 00:45:08,319
have been rumored to be in partnership

1233
00:45:12,710 --> 00:45:10,240
with him which we're not

1234
00:45:14,309 --> 00:45:12,720
but we are a large service provider and

1235
00:45:18,470 --> 00:45:14,319
if he can

1236
00:45:22,630 --> 00:45:18,480
execute this mission i'd be happy to

1237
00:45:26,870 --> 00:45:24,790
for ms shotwell this is jim howard from

1238
00:45:28,630 --> 00:45:26,880

social media uh just quick questions

1239
00:45:30,870 --> 00:45:28,640
about the dragon capsule are they

1240
00:45:32,710 --> 00:45:30,880
reusable or ever going to be reused and

1241
00:45:34,710 --> 00:45:32,720
do you have any customers for it other

1242
00:45:37,109 --> 00:45:34,720
than nasa

1243
00:45:38,230 --> 00:45:37,119
we have by the way the dragon capsule is

1244
00:45:40,870 --> 00:45:38,240
absolutely

1245
00:45:43,750 --> 00:45:40,880
reusable it was designed to be reusable

1246
00:45:46,150 --> 00:45:43,760
we have turned dragon on after she's

1247
00:45:47,829 --> 00:45:46,160
come home and she does operate exactly

1248
00:45:51,510 --> 00:45:47,839
as planned

1249
00:45:53,430 --> 00:45:51,520
so so we know we can reuse it we

1250
00:45:56,150 --> 00:45:53,440
we will find customers for those

1251
00:45:59,510 --> 00:45:56,160
dragging capsules

1252
00:46:02,790 --> 00:45:59,520
potentially even have nasa consider

1253
00:46:04,390 --> 00:46:02,800
leveraging refurbished capsules but

1254
00:46:08,069 --> 00:46:04,400
we do have a lot of interest in the

1255
00:46:13,510 --> 00:46:11,270
dave dickinson with astroguys.com norad

1256
00:46:16,470 --> 00:46:13,520
in satellite trackers generally track

1257
00:46:19,510 --> 00:46:16,480
four payloads with the uh with each

1258
00:46:20,550 --> 00:46:19,520
launch i wondered what else besides the

1259
00:46:25,829 --> 00:46:20,560
booster

1260
00:46:30,470 --> 00:46:28,550
solar panel covers or the fairings or oh

1261
00:46:33,750 --> 00:46:30,480
i see okay so you're asking what are the

1262
00:46:35,750 --> 00:46:33,760
components of falcon 9 and dragon norad

1263
00:46:37,430 --> 00:46:35,760

will catalog usually four objects that

1264
00:46:39,990 --> 00:46:37,440
are up there and i've had questions

1265
00:46:40,950 --> 00:46:40,000
before what are those other two objects

1266
00:46:42,950 --> 00:46:40,960
are they

1267
00:46:46,390 --> 00:46:42,960
probably the the pharynx the solar array

1268
00:46:49,750 --> 00:46:47,670
all right we'll take our last question

1269
00:46:50,790 --> 00:46:49,760
from irene

1270
00:46:52,710 --> 00:46:50,800
um

1271
00:46:55,030 --> 00:46:52,720
i hope this isn't a nasa anti-social

1272
00:46:57,670 --> 00:46:55,040
question but in light of the um

1273
00:46:59,750 --> 00:46:57,680
the engine issues uh your company was

1274
00:47:02,390 --> 00:46:59,760
pretty sensitive about it and i was

1275
00:47:05,190 --> 00:47:02,400
wondering if there was any business

1276
00:47:06,870 --> 00:47:05,200
implications uh any customers

1277
00:47:08,710 --> 00:47:06,880
that were kind of on the hook that

1278
00:47:12,550 --> 00:47:08,720
decided to wait and see a few more

1279
00:47:14,470 --> 00:47:12,560
flights and then just in general

1280
00:47:17,030 --> 00:47:14,480
this is just the beginning of a very

1281
00:47:19,270 --> 00:47:17,040
large manifest for spacex a lot of

1282
00:47:21,510 --> 00:47:19,280
different kinds of customers

1283
00:47:23,349 --> 00:47:21,520
how important aside from the mission of

1284
00:47:25,270 --> 00:47:23,359
delivering to the station

1285
00:47:29,030 --> 00:47:25,280
how do you how do you all look at this

1286
00:47:31,430 --> 00:47:29,040
as far as the overall company's future

1287
00:47:33,589 --> 00:47:31,440
how do i look at the national mission

1288
00:47:34,390 --> 00:47:33,599

this well each each flight that comes

1289
00:47:37,030 --> 00:47:34,400
you know

1290
00:47:38,950 --> 00:47:37,040
got you got two down next one next one

1291
00:47:40,790 --> 00:47:38,960
and and i guess i'm asking just because

1292
00:47:44,470 --> 00:47:40,800
there was kind of a

1293
00:47:46,150 --> 00:47:44,480
a media backlash a bit from spacex for

1294
00:47:48,790 --> 00:47:46,160
those of us when we were reporting on

1295
00:47:50,790 --> 00:47:48,800
the engine issue

1296
00:47:53,030 --> 00:47:50,800
uh i'm sorry i don't understand that the

1297
00:47:55,270 --> 00:47:53,040
backlash piece

1298
00:47:57,270 --> 00:47:55,280
the company was sensitive about it

1299
00:47:59,510 --> 00:47:57,280
well i think the majority of our

1300
00:48:00,790 --> 00:47:59,520
sensitivity is due to this whole state

1301
00:48:02,549 --> 00:48:00,800
department

1302
00:48:04,470 --> 00:48:02,559
regime that

1303
00:48:08,710 --> 00:48:04,480
failures and

1304
00:48:12,150 --> 00:48:08,720
how you describe the process to get

1305
00:48:13,670 --> 00:48:12,160
through that is an extremely protected

1306
00:48:15,109 --> 00:48:13,680
um

1307
00:48:16,630 --> 00:48:15,119
pieces of information i mean that's

1308
00:48:19,270 --> 00:48:16,640
really what

1309
00:48:21,990 --> 00:48:19,280
that's what prompted the current itar

1310
00:48:24,309 --> 00:48:22,000
laws was

1311
00:48:26,230 --> 00:48:24,319
a commercial satellite company

1312
00:48:27,750 --> 00:48:26,240
in china helping

1313
00:48:29,430 --> 00:48:27,760

them

1314
00:48:31,349 --> 00:48:29,440
just by asking questions how to get

1315
00:48:33,430 --> 00:48:31,359
through a launch failure so we're just

1316
00:48:35,430 --> 00:48:33,440
ultra sensitive about that i don't look

1317
00:48:37,109 --> 00:48:35,440
good in horizontal stripes

1318
00:48:38,790 --> 00:48:37,119
i certainly don't want to go to jail i'd

1319
00:48:40,950 --> 00:48:38,800
like to see my kids go to college and

1320
00:48:42,630 --> 00:48:40,960
graduate so um we're just we're just

1321
00:48:44,390 --> 00:48:42,640
really careful about that probably too

1322
00:48:46,150 --> 00:48:44,400
careful and we'll find that out when we

1323
00:48:48,309 --> 00:48:46,160
get this report that we sent the state

1324
00:48:49,750 --> 00:48:48,319
department to said what can we say this

1325
00:48:51,750 --> 00:48:49,760
stuff in public

1326
00:48:53,349 --> 00:48:51,760
um

1327
00:48:55,030 --> 00:48:53,359
did that get the second part of your

1328
00:48:57,109 --> 00:48:55,040
question yeah i guess i guess just as

1329
00:49:00,549 --> 00:48:57,119
far as the um if there was any business

1330
00:49:02,230 --> 00:49:00,559
implications from that and just as a

1331
00:49:03,829 --> 00:49:02,240
how one of these missions sort of sets

1332
00:49:07,030 --> 00:49:03,839
the stage for everything else that's

1333
00:49:10,309 --> 00:49:07,040
coming down the road for spacex so uh

1334
00:49:12,390 --> 00:49:10,319
we lost no customers uh as a matter of

1335
00:49:15,109 --> 00:49:12,400
fact i have to tell you that i think the

1336
00:49:18,150 --> 00:49:15,119
industry and the public was dramatically

1337
00:49:19,990 --> 00:49:18,160
impressed by the fact that we had an

1338
00:49:22,150 --> 00:49:20,000

engine issue

1339
00:49:24,710 --> 00:49:22,160
engine shut down and still made mission

1340
00:49:26,390 --> 00:49:24,720
um so it's it's an impressive thing

1341
00:49:28,710 --> 00:49:26,400
again you know you don't want it to

1342
00:49:30,069 --> 00:49:28,720
happen but the fact that the vehicle did

1343
00:49:31,270 --> 00:49:30,079
exactly what it was supposed to do was

1344
00:49:32,710 --> 00:49:31,280
impressive we've heard from the

1345
00:49:35,190 --> 00:49:32,720
insurance community

1346
00:49:36,790 --> 00:49:35,200
they were impressed um

1347
00:49:38,470 --> 00:49:36,800
our other customers have been very

1348
00:49:41,270 --> 00:49:38,480
impressed as well so

1349
00:49:42,870 --> 00:49:41,280
no no one's canceled

1350
00:49:45,109 --> 00:49:42,880
i don't believe there was a contract

1351
00:49:47,910 --> 00:49:45,119
that we had kind of in limbo that didn't

1352
00:49:49,910 --> 00:49:47,920
get signed in that time frame

1353
00:49:52,950 --> 00:49:49,920
just as a factoid every commercial

1354
00:49:55,589 --> 00:49:52,960
launch that was competed last year

1355
00:50:00,390 --> 00:49:55,599
in the falcon 9 class spacex 1.

1356
00:50:04,309 --> 00:50:01,990
and with that i think we'll wrap it up

1357
00:50:05,670 --> 00:50:04,319
thank you gwen

1358
00:50:07,829 --> 00:50:05,680
everything remains on track for the

1359
00:50:09,990 --> 00:50:07,839
launch tomorrow morning at 10 10 a.m

1360
00:50:11,670 --> 00:50:10,000
eastern standard time of the falcon 9

1361
00:50:14,069 --> 00:50:11,680
and dragon capsule

1362
00:50:15,270 --> 00:50:14,079
you can follow activities on social

1363
00:50:18,309 --> 00:50:15,280

media

1364
00:50:21,750 --> 00:50:18,319
on twitter using at nasa and at spacex

1365
00:50:23,190 --> 00:50:21,760
and the hashtags iss and dragon and

1366
00:50:25,430 --> 00:50:23,200
we'll begin our live launch coverage

1367
00:50:27,430 --> 00:50:25,440
tomorrow at 8 30 a.m

1368
00:50:30,230 --> 00:50:27,440
right here on nasa television and